



Securing Mountain Water and Livelihoods

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APS-527-13-000002 – Climate Change Adaptation Program (GPAP)

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ACRONYMS

ACC	Adaptation to Climate Change
ALA	Local Water Authority (ANA)
ANA	National Water Authority
APCI	Peruvian Agency for International Cooperation
CAMBIAR	Climate Adaptation in Andean Basins
CCA	Climate Change Adaptation
CC-A	Center for Water Competencies
CIAD	Environmental Investigation for Development Center
CONCYTEC	National Council of Science and Technological Innovation
COP	Chief of Party
CSA	Compensation for Environmental Services
CSU	Colorado State University
DGIIA	Direction General of Environmental Research and Information (MINAM)
DGIP	Direction General of Public Investment (MEF)
EIC	Component Implementation Teams
EPS	Potable Water Company
EWB	Engineers Without Borders
ERCC	Climate Change Regional Strategic
FCAM	Faculty of Environmental Sciences (UNASAM)
FINCyT	Fund for Innovation Science and Technology
FONIPREL	Promotional Fund for Local and Regional Public Investment
GI	Advocacy Group
GOR-Ancash	Regional Government of Ancash
GRRNGMA	Regional Office of Natural Resources and Environmental Management (GOR-Ancash)
HIMAP	High Mountain Adaptation Partnership (USAID)

ACRONYMS

IAP	Participatory Action Research
IBA	Andean Biotic Indicator
IDP	Institutional Development Plan
IMACC	Project Climate Change Adaptation Measures (MINAM-IDB)
INAIGEM	Glacier and Mountain Ecosystems National Research Institute
IPROGA	Institute for the Promotion of Integrated Water Management
IR	Intermediate Result
ISF / EWB	Engineers Without Borders
IT	Technological Institute
JUNTOS	National Program for Direct Support to the Poorest Population
LCA	Quality Environmental Laboratory
LAPA	Local Adaptation Plan of Action
LB	Baseline
LWA	Local Water Association
M & E	Monitoring and Evaluation
MEF	Ministry of Economy and Finance
MM	Municipal Commonwealth
MMTC	Tres Cuencas Municipal Commonwealth
MMW	Waraq Municipal Commonwealth
MEIA	Monitoring Evaluation and Impact Assessment
MINAM	Ministry of the Environment
MRSE	Mechanism for Retribution of Ecosystem Services
OGEYPS	General Office of Outreach and Social Projection (UNASAM)
NGOs	Non-Governmental Organization
PAAL	Plan of Action for Local Adaptation
PAR	Participatory Action Research

ACRONYMS

PCM-SD	Chair of the Council of Ministers-Secretary of Decentralization
PDI	Institutional Development Plan
PIP	Public Investment Project
PMP	Performance Monitoring Plan
PNH	Huascaran National Park
PUCP	Pontificia Universidad Católica de Perú
POA	Annual Operating Plan
POG	General Operating Plan
PSI	Sub-sectorial Irrigation Program
PUCP	Catholic University of Peru
REGEMA	Network of Commonwealth Managers
REMURPE	Peruvian Municipality Web
SAT	Early Warning System
SENAMHI	National Meteorology and Hydrology Service of Peru
SENASA	National Service for Quality and Health of Food Crops
SERFOR	Forest and Wildlife National Service
SERNANP	National Service of Protected Areas
SIAR-Ancash	Regional Environmental Information System of Ancash
SNIP	National System of Public Investment
SUNASS	National Superintendence of Water and Sanitation Services
TDC	Theory of Change
TMI	The Mountain Institute
SNIP	National Public Investment System
UGRH	Unit of Glaciology and Water Resources (ANA)
UNASAM	National University Santiago Antúnez de Mayolo
UNALM-LEUP	National Agrarian University La Molina. Ecology and Pasture Management Laboratory

ACRONYMS

UNMSM-TL	San Marcos National University-Remote Sensing Laboratory
UPCH-EL	Peruvian University Cayetano Heredia Eco-Toxicology Laboratory
USAID	United States Agency for International Development
USFS	US Forest Service
UTA	The University of Texas at Austin
UvA-IBED	University of Amsterdam - Institute of Biodiversity and Ecosystem Dynamics

1. EXECUTIVE SUMMARY

“Securing Mountain Water and Livelihoods” is implemented by The Mountain Institute through a collaborative agreement with USAID (AID-527-A-14-00001). The project seeks to build the capacity and resilience of mountain communities living in and around the Huascarán Biosphere Reserve of the Ancash Region as they adapt to the impacts of climate change with a specific focus on securing mountain waters and livelihoods. The project aims to achieve three results, as follows:

- R1. Improved knowledge and management of territories, ecosystems and hydrologic infrastructures reduces risks and impacts of climate change in highland Ancash Region
- R2. Public Funds for water security in high-mountain communities of Ancash obtained
- R3. Improved capacities of communities to adapt to climate change, improve the health of ecosystems and develop infrastructures that regulate water and sustain livelihoods

The first result is achieved through two sets of activities aimed at improving the capacities of multiple institutions within Ancash to **produce information that supports decision-making for adaptation.**

- Strategy 1. Develop a regional information system in Ancash, involving multiple stakeholders, that supports decision making for climate change adaptation.
- Strategy 2. Strengthen the capacities of the public university (UNASAM) to provide information services that support decision making for climate change adaptation.

The second result is accomplished through three sets of activities which increases capacities of local government and municipal commonwealth actors in Ancash, especially focusing on women leaders and drawing from the most up to date information to **develop policies and actions that mobilize financial and technical resources for adaptation.**

- Strategy 3. Formulate policies and instruments that support climate change adaptation at the level of the Regional Government and the territories of municipal commonwealths of Ancash.
- Strategy 4. Develop capacities in municipalities, regional government, commonwealths and sectors of Ancash Region to design and fund public investment projects to support ecosystem conservation and irrigation systems.
- Strategy 5. Develop capacities among groups of women authorities to promote climate change adaptation actions that reduce the vulnerability of women and other most vulnerable groups.

The third result is achieved through two sets of activities that aim to **strengthen the capacity of mountain communities to manage natural resources and water systems impacted by climate change.**

- Strategy 6. Institutionalize Mechanisms for the Retribution of Ecosystem Services (MRSE) in Huascarán Biosphere Reserve and National Park that benefit highland communities and ecosystems that regulate water for entire basins.

- Strategy 7. Promote local innovative solutions identified through participatory processes that reduce stress on ecosystems and promote social and cultural attributes of community wellbeing.

In FY2016 TMI brought together key partners to coordinate with local governments on actions towards sustainability for the Huascarán Biosphere Reserve (HBR). TMI partnered with UNESCO and signed an agreement with AGRORURAL to strengthen climate change adaptation capacities in the HBR. TMI also partnered with the Glacier and Mountain Ecosystems National Research Institute (INAIGEM) to contribute the information generated by the project from the HBR, including information on climate, hydrology and ecosystem service payment mechanisms, and disseminate this information across the INAIGEM network. TMI, through the University of Texas, is co-designing with INAIGEM a training program to assess Glacial Lake Outburst Floods (GLOFs). Additionally, TMI has partnered with GRADE, which has contributed complementary funds to assess how to incorporate climate adaptation actions into social programs in the Tres Cuencas watershed (JUNTOS, FONCODES, PENSION 65). TMI's effort to promote alliances with local organizations stems from the project's theory of change strategies which aim to build the capacities of government agencies and other stakeholders that have a long-established presence in the HBR.

1. Information for adaptation. TMI is working with the public University of Ancash-UNASAM and other international, national, and local organizations, public and private, that generate information on climate and hydrology relevant to climate change adaptation. Sharing of climate and hydrology information and analysis of this information are needed for decision-making but are absent from the political culture of Ancash and, more broadly, that of Peru.

In addition to the internship program, TMI has contributed a total of 24 studies that improve decision-making for climate change adaptation. The project concluded this year's internship cycle of nine graduate students from UNASAM whose studies filled information gaps for climate change adaptation and explored opportunities for green public investment, including designs for three public investment projects. Eight new internships were initiated for the upcoming internship cycle. Each intern presented their study results to a university audience to both celebrate their achievement and help create awareness within the academic community of the great value of these studies for the future of Ancash. The information generated by UNASAM students and the project has been packaged in multiple formats (e.g. two-page summaries, ArcView Story Maps, etc.) that demonstrate the practical value of information and motivate UNASAM to continue providing information for the Ancash region. The internships have been an effective and low-cost mechanism to respond to the lack of basic environmental and social information required for adaptation in mountain regions of Peru.

To contribute to the project's advancement of its R1 objective, TMI began activities in cooperation with INAIGEM, established this year by the Ministry of Environment (MINAM), whose mission is to conduct applied research specific to mountain regions to inform adaptation, mitigation, and sustainable development policies of Peru.

Uptake and use of scientific data to inform policy decisions or to design public investment projects in the Ancash region is slow. Information producing organizations

like UNASAM, SENAMHI, ANA, HNP, INAIGEM work independently of one another and do not have a history of cooperation. However, the completion of Ancash's Climate Change Strategy (described under R2) has triggered interest in establishing a Regional Environmental Information System (SIAR-Ancash), through which participating organizations would contribute complementary climate and hydrological information. TMI is providing technical assistance to train the regional government of Ancash (GORE-Ancash) staff and to establish an ordinance by regional level executive order that will establish the SIAR designed by MINAM as a permanent and official instrument to promote a culture of institutional cooperation in information sharing.

In the last quarter of FY2016 TMI began preparing the project's results for use in the Ancash SIAR and for sharing with the wider public through CONCYTEC's knowledge fair *Perú con Ciencia* and other forums.

2. Mobilizing public funds for adaptation. The Ancash region contains the largest tropical mountain glacier range in the world. The region is considered a global 'thermometer,' as the rapid recession of glaciers is a visual representation of the many impacts of climate change. While the region faces great political challenges of securing investment, attention and resources toward adaptation, Ancash has made important policy advances with support of the USAID "Securing Mountain Water and Livelihoods" project.

The project partnered with three municipal commonwealths—Tres Cuenas, Rio Yanamayo, and Waraq—which have designated at least one central objective to securing water for local economic development. While the consolidation of municipal commonwealths in Peru is challenging, the Tres Cuencas municipal commonwealth has been an exemplary model for addressing vulnerability in Peru's mountains through a cooperative approach. The Tres Cuencas approach was selected by MINAM to be showcased at the national INTERCLIMA 2016 event. The municipal commonwealth of Waraq was created to respond to the threat of GLOFs that could impact the city of Huaraz. The Waraq municipal commonwealth has made advancements in its public investment project to establish an early warning system, though more slowly than anticipated due to two turnovers of the general manager position this year. The Rio Yanamayo municipal commonwealth was unfortunately not operative due to internal conflict among the newly elected mayors in December 2015 in the Board of Directors of the commonwealth. Hence, the project shifted its activities to working with the municipalities and women municipal council members.

Our work with GORE-Ancash resulted in concrete, worthwhile outcomes. GORE-Ancash had attempted unsuccessfully in the several years prior to elaborate its Regional Climate Change Strategy (ERCC). With the technical support of TMI, GORE-Ancash was able to reach a significant milestone in completing the ERCC for adaptation in Ancash. The ERCC was completed, approved by an ordinance, and published in a public-accessible version.

With the technical assistance of the project and in partnership with the Ministry of Finance and Economy (MEF), municipalities have received training and developed three ecosystem restoration ('green') and three irrigation public investment project profiles totaling approximately \$11 million dollars. While these project profiles are fully

developed, the municipalities must still identify and mobilize regional or national sources of funding for their implementation. The fact that Ancash has already completed its ERCC provides the policy framework to assign funds for the implementation of the ‘green’ projects developed by municipal commonwealths in future budgeting cycles. The Tres Cuencas municipal commonwealth is leading exploration of funding source for ‘green’ projects and has convened a meeting with representatives from MEF, the Ministry of Agriculture (MINAGRI), MINAM and the Chair of the Council of Ministers (*Presidencia del Consejo de Ministros*, PCM) to incorporate a typology of ‘green’ projects into the Promotional Fund for Local and Regional Public Investment (*Fondo de Promoción a la Inversión Pública Regional y Local*, FONIPREL).

UNASAM, MEF and TMI have agreed on a road map for transferring the diploma training program on the National System of Public Investment (*Sistema Nacional de Inversión Pública*, SNIP) and climate change to UNASAM, thus taking initial steps toward long-term continuity for this outcome.

Because climate change disproportionately affects women in mountain regions, it was important for TMI to give specific attention to capacity building for women elected to positions of government in the municipalities within the project municipal commonwealths. One of the most active groups of women council members (known as *regidoras*) comes from the Rio Yanamayo municipal commonwealth. The Rio Yanamayo and Tres Cuencas *regidoras* completed a training to carry out participatory assessments of gender and climate change vulnerability. The *regidoras* conducted analysis of the data collected through these workshops and implemented small projects with eight local women grassroots benefiting 120 families. *Regidoras* raised \$18,170 from their local governments for the implementation of these projects. Their success marks an important shift toward greater women’s empowerment as these *regidoras* take on more active roles in their respective municipalities.

3. Communities adapt to climate change. The project’s theory of change incorporates the 1.1 million hectares of the Huascarán Biosphere Reserve. The three municipal commonwealths are the core areas of direct intervention (Map 1). Farming communities, governmental organizations and non-governmental organizations (NGOs) are the main stakeholders and partners under the R3 objective. Creating access to hydrological information and enabling public funds for water projects are key actions in promoting adaptation to climate change in Ancash. Additionally, these actions must be implemented adequately at the community level in support of local livelihoods in order for effective adaptation to occur. Therefore, it was important for TMI to develop pilot cases and share the tools, method and experience gained in the implementation of community adaptation measures with governmental organizations such as AGRORURAL.

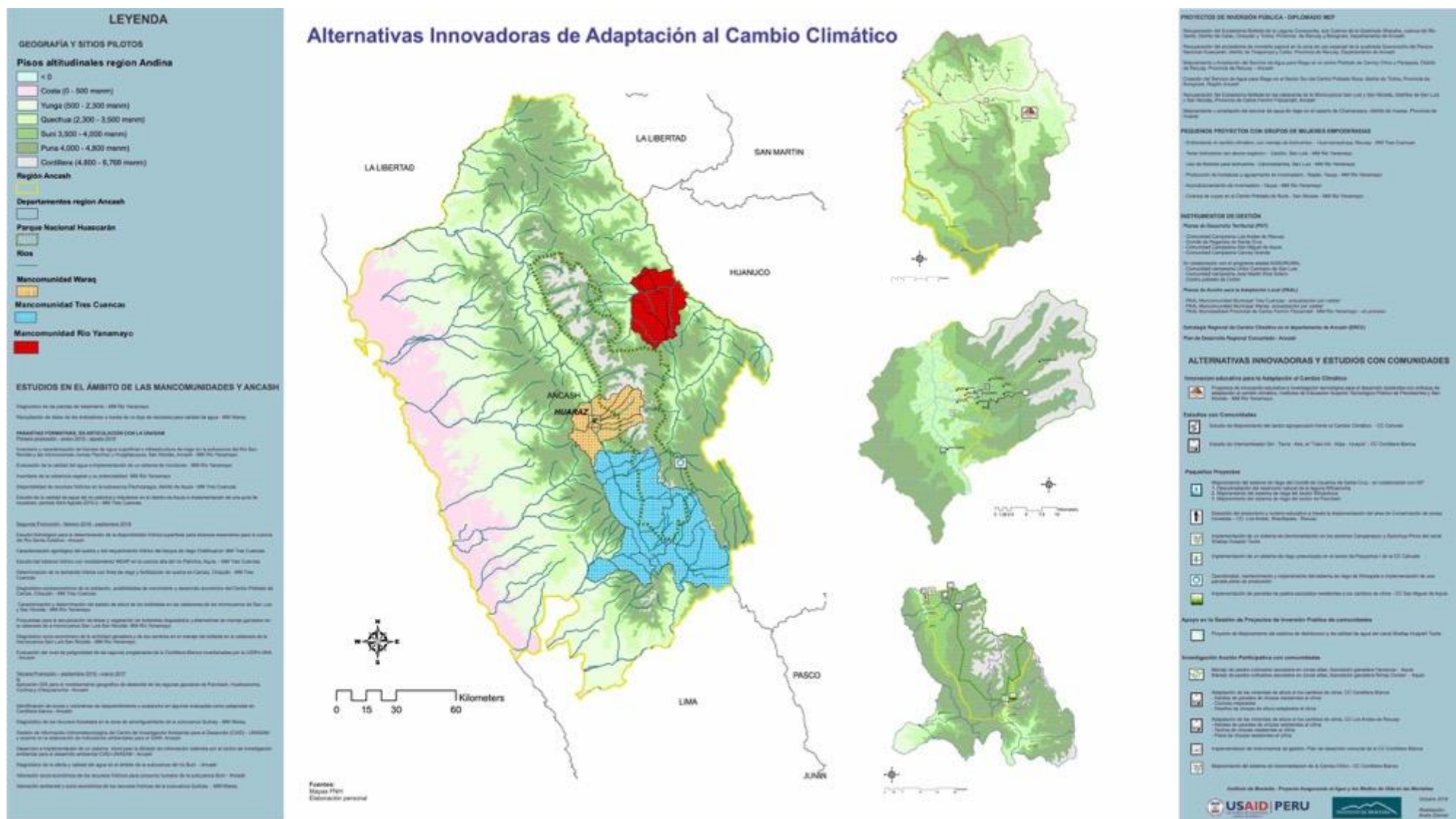
During FY 2016, TMI worked to strengthen the capacities of a newly created advocacy group that will promote Mechanisms for Retribution for Ecosystem Services (MRSE) in Huascarán Biosphere Reserve. INAIGEM joined the group and is cooperating with TMI in the implementation of two MRSE sites in the Buin and Quillcay watersheds.

INAIGEM and TMI are conducting studies in these watersheds to identify the hydrology services, the actions require to restore or protect them and then, based on that information, engage downstream water beneficiaries. As the advocacy group has strengthened, it has attracted new member organizations, such as SUNASS and the NGO Allpa.

During FY 2016, TMI implemented four local adaptation plans, supported five participatory research actions, and initiated the implementation of six small-scale adaptation projects with communities within the municipal commonwealth territories. As part of our strategy to scale up and ensure sustainability beyond the project, TMI trained all AGRORURAL staff in Ancash on a methodology for land use planning focusing on climate change adaptation. Following the training, AGRORURAL implemented plans in three of its agencies with technical assistance support of TMI (Map 1). Proposals for four projects identified in local adaptation plans, totaling \$17,600 dollars, were presented in partnership with local governments to the APORTES mini-projects fund. Our experience has reaffirmed the value of planning exercises as a first step toward implementing adaptation actions.

Two *Geographic Handbooks for Adaptation* and two Esri Story Map summary reports for the municipal commonwealths of Yanamayo (<http://arcg.is/29zBxe7>) and Tres Cuencas were developed during FY 2016. These products are important contributions to the long-term goal of scaling up climate change adaptation actions throughout the biosphere reserve.

MAP OF PROJECT SITE



2. II. SUMMARY OF PROGRESS

The following summary table shows of the contributions of the project to USAID standard indicators for reducing globally vulnerability to climate change. The set of USAID indicators captures results from several aggregated project activities. Following this summary table we provide details on the disaggregated results and more detail descriptions of project activities and products can be consulted in the following section.

USAID Indicators

USAID INDICATOR	DESCRIPTION	UNIT	Report Period July 1st– September 31, 2016			Target Year	Accumulated target year	% to date	Life of Project Target	Life of Project Actual	% of Life Project Target
			Target	Actual	% of Target						
USAID 3 4.8.2-14. Number of institutions with improved capacity to address climate change issues as a result of USG assistance	Municipal Commonwealths, Municipalities, National University (UNASAM), Social Organizations, Rural Communities, Women organizations, UNASAM Laboratories, AGRORURAL / other public institutions	Institutions	3	3	100.0	12.0	16.0	133.3	32.0	29.0	90.6
USAID 3 4.8.2-10. Amount of investment leveraged in U.S. dollars, from private and public sources, for climate change as a result of USG assistance.	Public Investment Projects, International Cooperation, Municipalities, non-local universities	US \$	1	1.229	122.9	1.0	1.2	122.9	5.5	2.4	42.9
USAID 4.8.2-6. Number of people trained in climate change as a result of the US Government assistance	Public officers, students, rural communities, women leaders and women counselors	People	150	151	100.7	233.0	251.0	107.7	500.0	410.0	82.0
USAID GNRD-3. Proportion of women reported increased self-efficacy with training programs by the US government supported	Women local leaders and municipal counselors increased self – efficacy To be measured at end of project	Percentage			100.0	10.0			10.0		
USAID 4.8.2-28. Number of laws, policies, strategies, plans, agreements or regulations addressing climate change (mitigation and adaptation) and / or biodiversity conservation	Local and Regional governments and rural communities have have Operative Plans to improve climate change actions, ordinances, local actions plans to reduce vulnerability, and actions implemented	Laws, policies and others	3	3	100.0	11.0	10.0	90.9	27.0	14.0	51.9

USAID INDICATOR	DESCRIPTION	UNIT	Report Period July 1st– September 31, 2016			Target Year	Accumulated target year	% to date	Life of Project Target	Life of Project Actual	% of Life Project Target
			Target	Actual	% of Target						
proposals officially adopted or implemented as a result of the US Government assistance											
USAID C12. Number of people informed and sensitized on natural resource management, biodiversity conservation and climate change as a result of USG assistance	Holding events, fairs, workshops, discussions, information provided through website and Facebook on project activities in the fields of project	People	325	341	104.9	1300.0	1350.0	103.8	3100.0	2477.0	79.9
USAID DO 3 C11. Number of studies and scientific research related to environmental issues which contribute to better management of natural resources as a result of USG assistance	Studies and research were developed by volunteers, TMI, internships, consultants to understand the context and improve environmental management focusing on climate change adaptation (diagnostics, studies, research, guides, work documents)	Studies, research, documents	10	10	100.0	10.0	17.0	170.0	40.0	37.0	92.5

USAID 3 4.8.2-14. Number of institutions with improved capacity to address climate change issues as a result of USG assistance

The project holds cooperative agreements to work with various institutions toward strengthening capacities to respond to climate change. These institutions are representative of the principal actors in the Ancash Region. While the indicator USAID 3 4.8.2-14 measures impact simply as the number of institutions with increased capacity, we note that there are very important networking and synergistic relationships constructed in the process of capacity building that contribute to a greater impact than captured by this indicator. Improving the capacities of the Ancash Regional Government to develop their Regional Climate Change Plan has bolstered up municipal commonwealths and communities to produce their own local action plans and has provided opportunities for UNASAM to provide information services to stakeholders at both levels. TMI has provided technical assistance on climate change related capacities to 29 institutions, comprised of a variety of institutional types. TMI holds memorandums of understanding with these institutions expressing objectives related to strengthening adaptation capacities through planning instruments, capacities to leverage funds, information generation, development of research skills, creation of norms, etc. The 29 institutions have received training and have improved their institutional capacity index scores as described in the Performance Monitoring Plan.

Disaggregation of institutions with improved capacity to address climate change issues as a result of USG assistance

Institution by Type	Number of Institutions	Description
Public /elected governments	8	Includes the GORE-Ancash, two municipal commonwealths and five municipalities
Public / research entities	4	The public university of Ancash UNASAM, two research centers affiliated with UNASAM, and INAIGEM a national level applied research center based in Huaraz
Public / conservation natural resource management	3	Huascarán National Park (HNP), the MRSE advocacy group affiliated with HNP and AGRORURAL's regional office in Ancash
Public / educational entity	1	Agricultural Technological Institutes training extension agents
Private / rural communities (men and women)	10	Rural communities located in the project areas and mixed men and women community-based organizations devoted to natural resource management or ecosystem restoration and focusing on addressing climate change impacts
Private / rural communities (only women groups)	3	Women community-based organizations working with social programs (e.g. FONCODES) to design small projects to address climate change impacts
Total	29	

USAID 3 4.8.2-10. Amount of investment leveraged in U.S. dollars, from private and public sources, for climate change as a result of USG assistance.

The amount of reported investment leveraged from the beginning of the project to the end of FY 2016 is broken down by funds (1) raised and managed directly by TMI (\$639,105) and (2) contributed by partners (\$590,549). This portfolio of investments contributes to implementation, dissemination of results in the region and climate change adaptation in the mountain areas of Peru. A more significant portfolio of investments comes from the government of Peru, though we are not yet able to report on these figures. These investments through public investment project funds have been designed during the present FY 2016 (see IR 2.6) by local governments and participating municipal commonwealths and will facilitate implementation of actions to secure water supply. Their status and next steps for securing funds are described below

Disaggregation of funds leveraged from public sources and current status

Typology of Public Investment	Number	Amount (USD)	Description / Location	Status / next steps
Ecosystem Service ('green')	3	\$6,556,544	Peatland restoration SNIP projects in Conococha lake (source of Santa River) and the San Luis and San Nicolás Districts, and grassland restoration SNIP project in Querococha lake, Huascarán National Park	Project profile completed and revised by MEF with observations under final revision. Incorporated in the budgeting program of Tres Cuencas Commonwealth. Next steps: identify and assign funding source during 2017
Irrigation	3	\$4,387,938	Irrigation development SNIP project in Canrey Chico y Pariapata villages, Roca, Ticlos District, Recuay District	Same as above
Total	6	\$10,994,482		

USAID 4.8.2-6. Number of people trained in climate change as a result of the US Government assistance

During FY 2016 a total of 251 people, completing at least 16 hours each of formal training, were trained by the project in topics and skills related to climate change. To date, the project has trained 410 people, 46% women, thus, providing equal capacity building opportunities to women.

Disaggregation of training by type of organization

Geographic Location	R1. University		R2 – Public Organizations		R3 – Communities		Total
	Men	Women	Men	Women	Men	Women	
Tres Cuencas municipal commonwealth			14	29	65	30	138
Río Yanamayo municipal commonwealth			5	32	39	14	90
Waraq municipal commonwealth			4	7			11
Other	90	81					171
Total	90	81	23	68	104	44	410

USAID GNRD-3. Proportion of women reported increased self-efficacy with training programs by the US government supported

This indicator measures the self-perceived capacity of women to conduct actions as a result of training or program activities. The project established a baseline of perceived self-efficacy of the 32 women participating in the training program, as shown in the graphic below.



The project will measure an end-line to assess changes in self-efficacy at the end of project period to assess the change in self-perceived capacity.

The project's activities dedicated to training for empowering women are described under "Strategy 5. Develop capacities among groups of women authorities to promote climate change adaptation actions that reduce the vulnerability of women and other most vulnerable groups" (IR 2.7 and 2.8). These were activities conducted with women who serve as council members in the focal municipalities. Training was provided to support women leaders of community based groups in the districts of San Nicolás, Yauya and Recuay. Women council members cooperated with five women's grassroots groups that received training and developed actions in response to climate change impacts

Small adaptation projects conducted by women grassroots and sponsored by Regidoras

District	Number of women's groups (families)	Project Investment	Local Government Investment (<i>Regidoras</i>)
Recuay	2 (30)	\$4,500	\$5,000
San Luis	2 (36)	\$4,500	\$3,546
Yauya	2 (32)	\$4,500	\$5,034
San Nicolás	2 (22)	\$4,500	\$4,590

Total	8 (120)	\$18,000	\$18,170
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USAID 4.8.2-28. Number of laws, policies, strategies, plans, agreements or regulations addressing climate change (mitigation and adaptation) and / or biodiversity conservation proposals officially adopted or implemented as a result of the US Government assistance

The project contributed to total of 12 normative instruments, including strategies, regulations, plans, agreements that address climate change and /or biodiversity mitigation. Two important ordinances of the Regional Government of Ancash are in their final stages of revision—one to support payment for ecosystem services and one to establish the environmental information system of the region. Seven local action plans for adaptation, elaborated by communities, are in process of approval. These complete the project’s target of 27 norms.

Relation of laws, policies, strategies, plans, agreements or regulations developed with project assistance

	Laws, policies, strategies, plans, agreements or regulations	Date
1	Adaptation Work Plan Plan of Waraq municipal commonwealth	15/07/2015
2	MOU establishing the advocacy group to develop payment for ecosystem services (MRSE) in Huascarán Biosphere Reserve	02/09/2015
3	Agreement Tres Cuencas municipal commonwealth – TMI to support development of projects to secure water supply	14/10/2015
4	Adaptation Work Plan of Tres Cuencas municipal commonwealth	30/10/2015
5	GORE-Ancash agreement to establish the SIAR	04/12/2015
6	UNASAM Agreement to promote climate change training	11/02/2016
7	Agreement to establish the hydro-climatic platform	08/06/2016
8	Resolution by UNASAM to foster volunteer work on climate change actions	26/06/2016
9	Regional Ordinance approving the Regional Climate Strategy (ERCC)	07/07/2016
10	Budget certification approving investment in climate change adaptation projects (securing water supply) in Tres Cuencas municipal commonwealth	26/07/2016
11	AGRORURAL-Ancash Agreement to incorporate climate change actions and training in their action plans	01/03/2016
12	Agreement of the Regional Government of Ancash with TMI to develop ERCC and SIAR	29/08/2016
13	Regional Government Ordinance recognizing the MRSE advocacy group (final review by legal department of GORE-Ancash)	01/09/2016
14	Regional Government Ordinance to establish SIAR (final review by legal department of GORE-Ancash)	01/09/2016
15-21	Eight Local Adaptation Actions Plans completed (to be approved by assemblies and recognized Municipal Commonwealths or local governments)	

USAID C12. Number of people informed and sensitized on natural resource management, biodiversity conservation and climate change as a result of USG assistance

Cumulatively, 2,477 (80% of the target) people have been informed by the project on results of project activities or on climate change impacts in mountain regions is. The target groups of these communication actions have come from very diverse backgrounds (e.g. public officers of Ancash Region, university students, mountain communities, urban centers, and the general public). During its last year the project will produce multiple visual presentations to communicate results to the public.

USAID DO 3 C11. Number of studies and scientific research related to environmental issues which contribute to better management of natural resources as a result of USG assistance

The project has completed 17 studies during the FY 2016 for a total of 37 studies, cumulatively. These studies come from work related to diagnostics, handbooks, and applied research to support decision-making related to climate change impacts. The following table provides a cumulative breakdown of the completed studies.

Actions that contribute information to climate change adaptation disaggregated by type

Type of Study	Number	Comment
Diagnostics conducted by TMI	8	Diagnostics of territories and organizations to guide dialogue with partner organizations
Studies	8	Include specific studies of technologies (e.g. improving constructions for climate, capture of heat in soil to warm houses), perceptions of risk and climate change, conceptual studies to support training in climate change
Applied Research	13	Conducted by UNASAM interns in the framework of the project to gather and review research related to adaptation needs of rural communities (e.g. plant communities, water availability and quality, water balance of small basins, economic analysis)
Handbooks	8	Development of smartphone applications to collect water quality, government norms, geographic atlas)
Total	37	

Project Implementation FY 2016 (valuation of progress)

Result 1. Improved knowledge and management of territories, ecosystems and hydrologic infrastructures reduces risks and impacts of climate change in highland Ancash Region

Code	DESCRIPTION	PROGRAMMED						
		Year 2016				Life of Project Target (%)	Life of Project Actual (%)	
		Q4 July - September 2016		Total Year 2016				
		P	E	P	E			
Result 1	Improved knowledge and management of territories, ecosystems and hydrologic infrastructures reduces risks and impacts of climate change in highland Ancash Region				28.22	100	63.45	
Strategy 1. Develop a regional information system in Ancash, involving multiple stakeholders that support decision making in climate change adaptation								
12.30						24.22		
IR 1.1	The Regional Environmental Information System (SIAR) is operating and receives information from members of the "climate Information Platform", UNASAM and other sources.	18	2	91	32	100	63	
1.1.1	Establishment and operation of the advocacy group of the "climate information platform"	0	0	27	0	27	27	
1.1.2	Implementation of a regional environmental information system (SIAR) with access to climate and hydrology tools developed by the project (climate indices, hydrology assessment tools, Map of GLOF risks in the region)	15	2	50	25	53	26	
1.1.3	Improve management instruments of the environmental research center for development (CIAD) and others in the climate information platform improved for better generation of hydro-climatic information	0	0	9	5	13	6	
1.1.4	Implementation of climate information for SIAR through project and various contributing suppliers of information	3	0	5	2	7	4	
Intermediate Result 1.2 (weighted average)						2.81		7.15
IR 1.2	Center of Environmental Research for Development (CIAD) is a source of hydro-climatic information for SIAR	7.0	7.0	55.0	22.0	100.0	56.0	
1.2.1	Improve cooperation of the Center of Environmental Research for Development (CIAD) with SIAR, INIGEM or other information providers in Ancash	0	7	40	20	67	47	
1.2.2	Implement management plans of CIAD laboratories through innovative and sustainable approaches	0	0	2	0	4	2	
1.2.3	Generation of certified hydro-climatic information and services according to the demands of users of SIAR	7	0	13	2	29	7	
Intermediate Result 1.3 (weighted average)						0.11		0.16
IR 1.3	Institutions and communities have access to environmental and hydro-climatic information through SIAR	21	3	73	10	50	14.5	
1.3.1	Support development of cooperation agreements between MINAM and GOR Ancash to establish SIAR	0	2	26	7	45	26	
1.3.2	Provide relevant information to potential stakeholders on adaptation to climate change and dissemination of the available information at SIAR and in partnership with UNASAM/INAIGEM	21	1	47	3	55	3	
Strategy 2. Strengthen the capacities of the public university (UNASAM) to provide information services that support decision making for climate change adaptation								
intermediate result 1.4 (weighted average)						4.62		12.83

Code	DESCRIPTION	PROGRAMMED					
		Year 2016				Life of Project Target (%)	Life of Project Actual (%)
		Q4 July - September 2016		Total Year 2016			
		P	E	P	E		
IR 1.4	Training program on climate change adaptation implemented has strengthened the capacities of students and faculty at UNASAM to support adaptation actions in Ancash	17.00	16.00	29.00	27.00	100.00	75.00
1.4.1.	Design training program in adaptation to climate change for faculty and students to meet the needs of research and information services	0	0	0	0	14	14
1.4.2	Development of training courses in Climate Change Adaptation (CCA) according to the needs identified	13	13	16	16	66	49
1.4.3	Elaboration of material and virtual learning space to reinforce training courses	4	3	13	11	20	12
Intermediate Result 1.5 (weighted average)					7.15		13.88
IR 1.5	Participants of the training internship in climate change adaptation are qualified to generate necessary, high-quality information	17	21	29	34	100	66
1.5.1	Develop the program of training internships ("pasantías") for senior students in UNASAM	17	21	28	33	95	65
1.5.2	Training internship is institutionalized at the UNASAM level and with other interested partners	0	0	1	1	5	1
Intermediate Result 1.6 (weighted average)					0.11		0.63
IR 1.6	Cooperative Research Group in Adaptation (GCI) in High-Mountain Ecosystems implements climate change adaptation projects in Ancash Region	2	0	44	10	100	56
1.6.1	Implementation of the Cooperative Research Group in Adaptation and preparation of the regional environmental research agenda	0	0	29	5	59	41
1.6.2	Organize meetings between the sub-groups of the Cooperative Research Group on Adaptation to High Mountain Ecosystems to develop research projects	2	0	15	5	41	15
Intermediate Result 1.7 (weighted average)					0.61		3.14
IR 1.7	UNASAM recognized as provider of information and technical assistance for climate change adaptation in Ancash	5.0	2.3	11.0	13.0	100.0	67.0
1.7.1	Training of interns and other actors in ArcGIS on-line	0	6	12	12	74	62
1.7.2	Disseminate reports of internships/research to local governments, municipal commonwealths, SIAR and others	14	0	19	0	23	3
1.7.3	Strengthen UNASAM -OEUYPS program of volunteers as well as other sources through cooperation with the climate platform and other project components	1	1	2	1	3	2
Intermediate Result 1.8 (weighted average)					0.51		1.46
IR 1.8	Develop a system for collecting and reporting water quality information to rural communities through students using smartphone applications	8.5	0	26.5	14	100	40
1.8.1	Design, develop and validate a telephone app for collecting and reporting water quality information through university students	17	0	33	5	68	33
1.8.2	Institutionalize the strategy to develop Apps to support climate change adaptation with UNASAM and other partners	0	0	20	9	32	7

Result 2. Public Funds for water security in high-mountain communities of Ancash obtained

Code	DESCRIPTION	PROGRAMMED					
		Year 2015				Life of Project Target (%)	Life of Project Actual (%)
		Q4 (July – Sept 2016)		Total Year 2016			
		P	E	P	E		
R. 2	Public Funds for water security in high-mountain communities of Ancash obtained				60.59		77.71
Strategy 3. Formulate policies and instruments that support climate change adaptation at the level of the Regional Government and the territories of the Municipal Commonwealths							
Intermediate Result 2.1 (weighted average)						11.00	13.61
IR 2.1	Municipal Commonwealth Support Group constituted	4	0	24	63	100	78
2.1.1	Establish a support Group with pilot Municipal Commonwealths to strengthen and develop cooperation among them	4	0	24	63	100	78
Intermediate Result 2.2. (weighted average)						0.60	1.2
IR 2.2	Local Adaptation Plans of Action (PAAL) developed and updated for the pilot Municipal Commonwealths	18	17	40	30	100	60
2.2.1	Training of Municipal Commonwealths and municipal staff in the elaboration of Local Adaptation Plans of Action (PAAL).	18	17	40	30	100	60
Intermediate Result 2.3. (weighted average)						6.46	7.02
IR 2.3	Regional Climate Change Strategy (ERCC) of Ancash elaborated and proposed policies and actions incorporated in the Regional Concerted Development Plan (PDC)	8	2	73	69	100	75
2.3.1	Ancash Government develops its Regional Climate Change Strategy (ERCC) with support of MINAM	8	2	73	69	100	75
Strategy 4. Develop capacities in municipalities, regional government, commonwealths and sectors of Ancash Region to design and fund public investment projects to support ecosystem conservation and irrigation systems							
Intermediate Result 2.4. (weighted average)						29.33	41.52
IR 2.4	Technical staff of Ancash Region, local governments and sectors have been trained and elaborated “green” and irrigation SNIP projects incorporating risk management and climate change context	4.00	10.00	67.00	65.00	100.00	92.00
2.4.1	Organization of the Diploma in “green” and irrigation SNIP projects for the training of public functionaries of Ancash	0	7	23	41	41	41
2.4.2	Implementation of the Diploma course to elaborate SNIP projects at profile level incorporating risk management in a climate change context	4	3	7	17	18	18
2.4.3	Develop support tools for analysis of risk management and climate change context for the elaboration of “green” and irrigation SNIP projects	0	0	37	7	41	33
Intermediate Result 2.5. (weighted average)						0.80	0.70
IR 2.5	Model of alliance University-Government to support continuity of “hands-on” training in development of public investment projects with a focus on risk management and climate change context	47	12	92	16	100	14
2.5.1	Coordination with MEF and UNASAM for continuation of the Diploma in “green” SNIP projects in the Ancash Region	0	4	8	4	8	2
2.5.2	Development of agreements with the Regional Government and municipalities to participate and support the continuity of Diploma training and elaboration of “green” SNIP projects	41	8	69	12	77	12
2.5.3	Elaborate a lessons learned document regarding the implementation of the Diploma on the “green” and irrigation SNIP projects with risk management in a climate change context	6	0	15	0	15	0
Intermediate Result 2.6. (weighted average)						0.30	0.37
IR 2.6	SNIP “green” (grassland and wetland) and irrigation projects formulated in the Diploma have been budgeted and financed	24.00	19.00	77.00	30.00	100.00	37.00
2.6.1	Specific technical assistance and follow up of the PIPs elaborated in the Diploma during the process of inscription in SNIP	3	11	32	20	32	22

Code	DESCRIPTION	PROGRAMMED					
		Year 2015				Life of Project Target (%)	Life of Project Actual (%)
		Q4 (July – Sept 2016)		Total Year 2016			
		P	E	P	E		
2.6.2	Public Investment Projects developed in the Diploma have been assigned funding	7	0	21	2	32	3
2.6.3	Municipal authorities complete the bidding process to implement "green" and irrigation projects designed in the Diploma	14	8	24	8	36	12
Strategy 5. Develop capacities among groups of women authorities to promote climate change adaptation actions that reduce the vulnerability of women and other most vulnerable groups							
Intermediate Result 2.7. (Weighted average :)						9.37	10.56
IR 2.7	Women authorities in local governments have proposed and implemented policy initiatives and projects to reduce climate change impact on women in their municipalities or commonwealths	5	6	41	71	100	80
2.7.1	Design training to strengthen the capacities of women serving in municipal councils and female leaders to promote gender inclusion and awareness of climate change impacts on women	0	0	4	8	10	5
2.7.2	Conduct training program to strengthen the capacities of women serving in municipal councils: focus on gender and public administration (command of planning and budget procedures and state administrative systems)	0	0	23	45	56	45
2.7.3	Conduct training of women councilors and local leaders in Gender and Climate Change: developing small projects led by women as a learning tool on climate change adaptation actions	2	1	6	10	17	15
2.7.4	Technical assistance to women groups to prepare new initiatives on climate change adaptation based on their learning experience with small climate change actions	3	5	8	8	17	15
Intermediate Result 2.8. (weighted average)						2.73	2.73
IR 2.8	The network of women councilors (Red de Regidoras) disseminates its experience with national support groups or national agencies	16	5	89	39	100	39
2.8.1	Technical assistance as required to support the elaboration of gender-sensitive policies for climate change adaptation	8	0	11	0	22	0
2.8.2	Documentation of experience of the women working on gender and climate change adaptation through "Participatory Video" methods	8	5	78	39	78	39

Result 3. Improved capacities of communities to adapt to climate change, improve the health of ecosystems and develop infrastructures that regulate water and sustain livelihoods

Code	DESCRIPTION	PROGRAMMED					
		Year 2016				Life of Project Target (%)	Life of Project Actual (%)
		Q4 (July – Sept 2016)		Total Year 2016			
		P	E	P	E		
R. 3	Improved capacities of communities to adapt to climate change, improve the health of ecosystems and develop infrastructures that regulate water and sustain livelihoods				37.80		52.22
Strategy 6. Institutionalize in Huascarán Biosphere Reserve and National Park Mechanisms for the Retribution of Ecosystem Services (MRSE) that benefit upland communities and ecosystems that regulate water for whole basins							
Intermediate Result 3.1 (weighted average)						1.09	1.56
IR 3.1	Institutionalized Mechanisms for Retribution of Ecosystems Services (MRSE) with recognized and trained advocacy group	42.00	5.00	71.00	50.00	100.00	72.00
3.1.1	Formation of a recognized, informed, Advocacy Group with work plan, agreements and partners to promote MRSE	2	2	8	5	8	8

Code	DESCRIPTION	PROGRAMMED					
		Year 2016				Life of Project Target (%)	Life of Project Actual (%)
		Q4 (July – Sept 2016)		Total Year 2016			
		P	E	P	E		
3.1.2	Strengthening of the MRSE Advocacy Group	40	3	53	35	82	54
3.1.3	Integration of MRSE in management of Huascarán Biosphere Reserve (RBH) in the MASTER PLAN (MP) (Advocacy Group participates in the MP, key staff of Huascarán National Park (PNH) participates in training)	0	0	10	10	10	10
Intermediate Result 3.2 (average of activities)				1.21		1.89	
IR 3.2	The Advocacy Group (GI) has documented scenarios that have baseline studies to support community projects for water security.	0	0	64	64	100	100
3.2.1.	Definition of key actors, water suppliers and water users in the area of project implementation	0	0	29	29	58	58
3.2.2.	Definition of priority areas of intervention for the Advocacy Group in the project area of implementation	0	0	35	35	42	42
Intermediate Result 3.3 (weighted average)				1.30		1.55	
IR 3.3	Potential stakeholders of MRSE willing to develop cooperation agreements in the RBH	18	8	50	35	100	42
3.3.1	Sensitize and train private stakeholders that are beneficiaries of ecosystem services (SE) in the MRSE strategy	3	3	35	17	50	17
3.3.2	Sensitize and train key communities on the MRSE strategy and articulate them to the MRSE processes together with their local governments	15	5	15	18	50	25
Intermediate Result 3.4 (average of activities)				0.00		0	
IR 3.4	MRSE management committees formed in defined priority areas of the RBH						0
3.4.1	Connect upland communities and municipalities that conserve ecosystems that regulate water with stakeholders of the larger watershed that benefit from conservation to discuss the MRSE strategy	0	0	0	0	100	0
Strategy 7. Promote local innovative solutions identified through participatory action research process that reduce the stress on ecosystems and on social cultural attributes of community wellbeing							
Intermediate Result 3.5 (average of activities)				0.62		2.50	
IR 3.5	Diagnostic information to support development of adaptation actions (IAPS, small projects, innovative tools for decision making).	2.00	0.00	27.00	24.00	100.00	97.00
3.5.1.	Conduct Rapid Rural Appraisals with a focus on climate change in representative watersheds of the three municipal commonwealths	0	0	0	0	64	64
3.5.2.	Perform analysis of local perceptions of vulnerability to climate change in representative sites of the three municipal commonwealths (in cooperation with UNESCO)	0	0	21	21	30	30
3.5.3	Preparation on synthesis and orientation documents for Municipal Commonwealths in web-ready formats describing their territory, threats of climate change to their ecosystems, water infrastructure and livelihoods	2	0	6	3	6	3
Intermediate Result 3.6 (average of activities)				6.08		13.48	
IR 3.6	Communities have established Participatory Action Research actions (IAP) at low cost and on priority issues that contribute to adaptation to climate variability and change	11	5	92	23	100	51
3.6.1.	Supporting the development of Participatory Research actions (IAP) on topics related to wetlands, grasslands, and agro-pastoral production systems that are climate change and other direct threats.	1	0	1	1	4	4
3.6.2.	Implementation of IAPs that contribute to reduce threats of climate change and other direct threats affecting mountain ecosystems and livelihoods	10	5	91	22	96	47
Intermediate Result 3.7 (average of activities)				0.84		1.01	
IR 3.7	Research results have been shared and communicated among community groups in the area of influence.						18
3.7.1.	Validation and dissemination of the results of IAP through 'Participatory Video'	0	5	30	15	70	18

Code	DESCRIPTION	PROGRAMMED					
		Year 2016				Life of Project Target (%)	Life of Project Actual (%)
		Q4 (July – Sept 2016)		Total Year 2016			
		P	E	P	E		
Intermediate Result 3.8 (average of activities)		3.73				3.78	
IR 3.8	Communities and community-based groups have defined their development objectives, climatic and non-climatic threats to their territories and means of livelihood	19	16	99	80	100	81
3.8.1.	Communities and community-based organizations in pilot sites have leaders trained to identify, design and propose projects using climate proofing tools.	16	16	53	53	53	53
3.8.2.	Elaborate Local Adaptation Plans of Action (PAAL) identifying a project portfolio in pilot sites		0	46	27	47	28
Intermediate Result 3.9 (average of activities)		1.63				1.81	
IR 3.9	Package of innovative tools to support decision-making and climate proofing in the design of community projects developed	36	5	70	44	100	49
3.9.1.	Elaboration of community handbooks ('Cuadernos Metodológicos') to support adaptation planning at community levels	36	5	70	44	100	49
Intermediate Result 3.10 (average of activities)		16.89				19.96	
IR 3.10	Community projects focusing on reducing climate hazards and/or adaptation measures implemented in pilot sites (if small scale with project funds and if larger scale presented to national funding sources)	27.00	15.00	60.00	44.00	100.00	52.00
3.10.1.	Selection of priority adaptation projects and their respective sources of funding by the communities.	0	0	3	3	5	5
3.10.2.	Implementation of community local adaptation actions with TMI project funds.	26	15	54	41	91	47
3.10.3	Implementation by Government of Peru agencies working in rural development of priority adaptation projects that incorporate climate proofing and have been developed by communities	1	0	3	0	4	0
Intermediate Result 3.11 (average of activities)		1.51				1.75	
IR 3.11	Financial institutions have incorporated, in its portfolio of funding, projects developed with communities under an ACC focus	50	19	100	56	100	65
3.11.1.	Identification of funding sources for communities	50	19	100	56	100	65
Intermediate Result 3.12 (average of activities)		2.92				2.92	
IR 3.12	Technological institutes (Institutos Tecnológicos) incorporate research methods and professional training contextualized for the implementation of small projects and IAP with an adaptation to climate change (ACC) approach	47.00	11.00	78.00	47.00	100.00	47.00
3.12.1.	Develop agreements with stakeholders to strengthen Technological Institutes as a mechanism to promoter local adaptation to climate change	0	0	20	20	20	20
3.12.2.	Training of teachers and students on tools for the identification, design and management of climate change adaptation projects	24	5	29	10	40	10
	Implementation of climate proofed, small scale projects by the Technological Institutes	23	6	29	17	40	17

3. III. MAIN ACHIEVEMENTS

1. IMPROVED KNOWLEDGE AND MANAGEMENT OF TERRITORIES, ECOSYSTEMS AND HYDROLOGIC INFRASTRUCTURES REDUCES RISKS AND IMPACTS OF CLIMATE CHANGE IN HIGHLAND ANCASH REGION

Development of an information system that support adaptation in Ancash region (Strategy 1)



During FY 2016 TMI has made advancements on several elements for the development of the information system for Ancash. The project has generated information products that act as examples and thus encourage advancements of the system. However, true progress is achieved when local information producing organizations develop these capacities and cooperate among one another and share mechanisms to support the needs of people (e.g. information to adapt public investment, policies designed to prevent or reduce climate threats, etc.). TMI is working simultaneously on several elements of this local system made up of information producing organizations to prevent inefficiency resulting from unnecessary duplication of information. While the top priority of the project is to cooperate with GORE-Ancash to have a functional SIAR that gathers and distributes all the information available to support climate change adaptation in the region, the SIAR is not the only nor exclusive mechanism for this end. We are, therefore, also cooperating with INAIGEM's and SERNANP's public information systems as an auxiliary system.

IR 1.1. The Regional Environmental Information System (SIAR) is operating and receives information from members of the climate Information Platform, UNASAM and other sources.

During FY16 technical assistance provided by the project has strengthened multiple aspects of the SIAR in the GORE-Ancash. The regional government appointed one position to staff the SIAR. MINAM provided training for the person who filled this appointed position. MINAM also created the domain for the SIAR Ancash. During this process, we promoted the involvement of MINAM in developing the SIAR as one of the elements of the Ancash Regional Climate Change Strategy (supported by the project this fiscal year under IR 2.3). The project is working to support a legal ordinance to formalize the obligatory and permanent allocation of resources to the SIAR. The ordinance was under review at the close of FY16 and is expected to be approved before end of the calendar year.

To ensure a functioning and sustainable SIAR, it is important to support the capacity of the information generating organizations in Ancash and to promote additional mechanisms for sharing information. The project will continue promoting a network to exchange climate and hydrology information among Ancash-based organizations, which include government agencies and projects, such as INAIGEM, UNASAM-CIAD, SENAMHI, INDECI, DRA-Ancash, CHAVIMOCHIC, and the Huaraz and Santa offices of ALA-ANA, as well as private sector entities such as Antamina, and the Barrick

Mining Company. Achieving inter-agency and public-private cooperation for information exchange continues to be a challenge. Of the various agencies, only INAIGEM, CIAD and TMI have entered into a formal agreement to exchange, analyze, and share climate and hydrology information for climate change adaptation. During FY16, TMI signed an agreement with INAIGEM, a governmental agency operates under MINAM, to cooperate on a mechanism for information exchange that can operate as an auxiliary system to the SIAR.

UNASAM's student internship program is emerging as a promising source of information for SIAR (see IR 1.4 and 1.5). Examples of these studies include regional analysis, such as (i) a baseline study of existing hydro-meteorological data for Ancash and (ii) an evaluation of the risk of Cordillera Blanca proglacial lakes in the 2016 UGRH-ANA inventory and more localized studies, such as (iii) an assessment of surface water supply under different scenarios in the sub-watershed of Santa Catalina River and (iv) the application of a WEAP model to determine the hydrological balance of the upper watershed of Pativilca. Thirteen of these studies were completed by UNASAM students during FY16.

IR 1.2. Center of Environmental Research for Development (CIAD) is a source of hydro-climatic information for SIAR

UNASAM's CIAD climate and LCA water quality laboratories are local environmental information producing organizations potentially supporting the SIAR. During FY16, TMI provided technical assistance to both laboratories to develop business and management plans for financial sustainability. The plans are due to be completed by December 2016 and will begin implementation shortly thereafter. TMI has established an agreement with the UNASAM office of the Chancellor. However, effective implementation of the business plans will require additional support from the highest authorities. TMI has conducted multiple events to communicate to the academic community the scientific contributions that UNASAM has provided to Ancash, including the internship program and other project activities.

IR 1.3. Institutions and communities have access to environmental and hydro-climatic information through SIAR

TMI is preparing multiple information products that report the results of the project which will be channeled through both the SIAR as well as through the information systems of other organizations that operate under MINAM like INAIGEM and SERNANP- Huascarán National Park. TMI has an agreement with the Regional Government and MINAM to perform the role of co-administrator of the SIAR website to accelerate the input of information upon approval of the ordinance.

UNASAM is providing information services to support climate change adaptation in Huascarán Biosphere Reserve (Strategy2)

TMI is providing technical assistance to UNASAM to develop its capacity to provide information services in support of climate change adaptation through two complementary pathways. The first pathway consist of building an internship program for senior year undergraduate students at UNASAM, largely from the faculties of Environment,

Economy and Agronomy. Nineteen students have already completed applied research in support of the municipalities and communities through investigations to help in developing public investment projects and to connect the university to societal information needs in practical, cost-effective ways. TMI is identifying ways to provide sustainability to this promising initiative that involves young men and women into finding solutions to climate change impacts.

The second pathway consists of strengthening the capacities of UNASAM to conduct applied research to support adaptation to climate change. TMI has partnered with national and international universities to promote applied research on climate change within the Huascan Biosphere Reserve through opportunities for UNASAM research interns.

IR. 1.4. Training program on climate change adaptation implemented has strengthened the capacities of students and faculty at UNASAM to support adaptation actions in Ancash

The introductory course was presented this year to two cohorts of prospective interns, using actual project results to introduce climate change perceptions, planning land use, and adaptation. Instructors from project partner INAIGEM were invited to provide lectures to the students. The materials of the training course have been also used to train 40 additional agricultural workers of AGRORURAL in April 2016. To support the interns, TMI also developed a virtual platform which houses training materials and will be updated as additional project results are formatted for the platform. By building a training program for UNASAM students potentially interested in climate change, TMI has contributed to the strengthening of UNASAM as an information and knowledge provider in responding to climate change in the region.

IR. 1.5. Participants of the training internship in climate change adaptation are qualified to generate necessary, high-quality information

During FY 2016, TMI completed the second class of twelve interns and initiated a third class of nine students for a cumulative 30 UNASAM interns trained by the project, who are now providing information of relevance to climate change adaptation. Nine of the twelve interns in the second class were organized into three multi-disciplinary teams focusing on environmental sciences, economics, and agronomy. Students were paired with staff from municipalities designing ecosystem service and irrigation projects for SNIP. They were trained in basic methods on field work organization, data collection following scientific standards, writing skills, and collaboration. Students had the opportunity to present results at public events in order to share the results of their projects and promote UNASAM as a provider of adaptation services. The following list of studies carried out by interns provides details on the information generated by UNASAM which is now supporting adaptation in Ancash:

- Land use cover of Rio Yanamayo Municipal Commonwealth. Camilo Morales.
- Mapping water resources in Pischcaragra. Edson Palacios.
- Water quality assessment of the upper Pativilca watershed. Mary Baltasar.
- Water balance in the upper Pativilca watershed. William Menacho.

- Water quality assessment of the Rio Yanamayo Municipal Commonwealth. Cristina Lorelai.
- Inventory of irrigation infrastructure in the sub-watersheds of San Nicolás, Juncay Pacchac and Huagllapuquio. Maritza Brito.
- Restoration of land and plant cover in the headwaters of San Luis-San Nicolás. Ana Bazan.
- Water availability in the Santa Catalina watershed. Hugo Roque.
- Water demands for irrigation and soil fertility in the community of Carcas, Chiquian, Bolognesi Province. Yeny Granados.
- Socio-economic diagnostic and potential for economic growth associated with irrigation systems of Bolognesi Province. Herlan Narvayes.
- Systematization of environmental and socio-economic research in Huascarán Biosphere Reserve. Nohelia Picon.
- Systematization of hydro-climatic data available for Ancash. Cesar Reyes.
- Assessment of hazard risks in dangerous glacial lakes of Cordillera Blanca. Jhon Sanchez.

IR. 1.6. Cooperative Research Group in Adaptation (GCI) in High-Mountain Ecosystems implements climate change adaptation projects in Ancash Region

TMI has coordinated with SERNANP's INTERFAZ project on developing a workshop to identify research needs of Huascaran Biosphere Research stakeholders. All research grants obtained by TMI or partners focus on understanding the sustainable use of upper watershed grassland and wetland ecosystems as they are impacted by climate change. The following research grants were approved during FY 2016:

- “Involving Small-Scale Andean Livestock Farmers in Participatory Applied Research and Demand-Driven Innovation to Improve Rangeland Management in Peru’s Cordillera Blanca.” Lead: TMI. Funded by The McKnight Foundation (2016-2018), provides support for researchers at Peruvian universities UNASAM, UNALM, PUCP.
- Ethnobotany of medicinal plants in paramo ecosystems (2016-2018) supports studies of sustainable use of this natural resource in northern Peru. Lead: TMI. Funded by the National Agricultural Innovation Program (PNIA) of the Ministry of Agriculture, Peru.
- Development and validation of strategies to reduce degradation of high-Andean grasslands (2016-2018) in Central Peru (2016-2018). Lead: UNALM. Funded by the National Agricultural Innovation Program (PNIA) of the Ministry of Agriculture, Peru.
- “CNH RCN: Andes Bofedales and Cattle.” Lead: Colorado State University. Funded by NSF (2016-2020) provides opportunities for networking with national partners and researchers in Colorado State University, University of Texas at Austin, Michigan Technological University and national partners in the network.

While these research initiatives aimed at leveraging complementary UNASAM's research funds from the mining tax (*canon minero*), this activity was limited by the extreme difficulty in identifying leading partners at UNASAM to develop competitive proposals for this fund.

IR. 1.7. UNASAM recognized as provider of information and technical assistance for climate change adaptation in Ancash

In promoting a research network that supports resilient economic development and climate change adaptation TMI has created opportunities for UNASAM students and faculty to respond to the research demand of the Ancash region. During 2016, the project circulated results from UNASAM internship studies through social media, local radio and public presentations by interns. Students were also trained to use Esri Story Maps as an additional way to disseminate their study results. Efforts toward this project activity will be more intensive in the last year of the project, and will be supported by efforts made to ensure the sustainability of the CIAD and LCA laboratories in their role as information providers.

IR. 1.8. Develop a system for collecting and reporting water quality information to rural communities through students using smartphone applications

A smartphone application to determine stream water quality using macroinvertebrate bioindicators was developed in FY 2015 in partnership with professor Raul Loyaza from PUCH and was incorporated into the course taught by Professor Picon Castillo on use of bioindicators and bio-technology at the Environmental Sciences Faculty of UNASAM. Students will continue to be trained on these concepts and on the smartphone application. The application, its handbook, and a set of simple field tools to collect the macroinvertebrates have been transferred to UNASAM. The tool was introduced to approximately 200 participants from all over the country through a webinar in cooperation with the USAID project PARA-Agua, although we have not yet been able to implement additional activities to train other potential stakeholders of Ancash, such as AGRORURAL extension workers or HNP wardens.. Based on the positive experience of the smartphone application, TMI has assigned an internship to the development of a second application to access climate information available at CIAD-UNASAM. This project is currently underway.



2. PUBLIC FUNDS FOR WATER SECURITY IN HIGH-MOUNTAIN COMMUNITIES OF ANCASH OBTAINED

Improving access to water through new and/or more effective irrigation infrastructures and securing the supply of water for those infrastructures in the face of glacier recession and greater uncertainty in precipitation patterns requires government investment. In order to obtain and sustain this investment, we are pursuing a three-pronged approach consisting of (i) local governments with improved capacities to voice local needs and



problems; (ii) GORE Ancash policies and actions that encourage investment in actions that reduce vulnerability to climate change; and (iii) actual projects funded.

TMI is implementing the following complementary actions: Firstly, TMI is cooperating with municipal commonwealths, promoting them as an ideal vehicle to organize the consultation of local interests for problem identification and to design public investment projects. We had envisioned a small network of three municipal commonwealths synergistically building capacities for adaptation. Only one of the three associations—the Tres Cuencas

Commonwealth—proved to be effective, one was partially effective—Waraq, and one became inoperative—Rio Yanamayo.

Secondly, TMI cooperated with the Regional government of Ancash to elaborate the Regional Climate Change Strategy and (ERCC) associated policy tools like the Concerted Regional Development Plan (PDRC). The ERCC was completed and is now a tool that can be used to promote various adaptation actions. Other technical tools like the SIAR (see R1.1.) support implementation of the ERCC.

Thirdly, TMI cooperated with MEF to provide technical assistance to develop six public investment projects (initially valued at over \$10.9 million dollars) that are currently undergoing the process of registration in the national investment system (SNIP). These funds have yet been obtained, thus active cooperation between municipal commonwealths and/or each of the local governments that form these entities and GORE-Ancash is necessary to secure the funds for adaptation.

Ancash Regional Climate Change Strategy: policies and instruments that support climate change adaptation at the level of the Regional Government and the territories of municipal commonwealths of Ancash (Strategy 3)

IR. 2.1. Municipal Commonwealth Support Group constituted

The establishment of a cooperative support group of three pilot municipal commonwealths did not achieve the level of success expected, in spite of efforts made by the project. The Municipal Commonwealths of Waraq and Tres Cuencas did complete all their technical requirements to receive funds, and their municipalities contributed the basic financial and staff resources to operate them. Unfortunately, the Municipal Commonwealth of Rio Yanamayo became inoperative by end of FY2015, and TMI shifted to cooperation with the provincial governments instead.

The Tres Cuencas commonwealth is investing approximately \$215,000 obtained from FONIPREL funds prior to start of the USAID project to design irrigation and ‘green’ PIPs for some of the 16 communities located in its territory. Tres Cuencas is also in the process of developing cooperation with the neighboring Fortaleza commonwealth (MAMFOR).

Through the technical assistance of University of Texas Austin (UTA), the project provided technical assistance to Waraq Municipal Commonwealth to complete studies required to finance an Early Warning System (SAT) profile. UTA with INAIGEM, University of Zurich, and the Unit of Glaciology in Ancash is exploring the technical aspects required for a second PIP to reduce the volume of Palcacocha Lake.

TMI also organized a three-day workshop in cooperation with Tres Cuencas Municipal Commonwealth titled *Municipal Commonwealths: Building Safe Territories in the Context of Climate Change in Ancash* in June 2016. Several national agencies were invited and joined the event (PCM, MINAM, DGIPMEF, CONECTAMEF, FONIPREL) in order to create awareness and support for the public investment projects designed with commonwealths with the technical support of TMI and the UNASAM internship program.

IR 2.2. Local Adaptation Plans of Action (PAAL) developed and updated for the pilot Municipal Commonwealths

Municipal commonwealths have a formal mechanism of public consultation, known as a Citizen Conference, which provides the opportunity to identify priorities and communicate actions and progress to local leaders and other community representatives. TMI facilitated a two day workshop in Huaraz (December 9-10, 2015) to revise the Action Plan for Local Adaptation (PAAL) of the Waraq Municipal Commonwealth with community stakeholders and government extension agencies operating in the Quillcay watershed. Initially, there was great interest of Ministry of Agriculture in Ancash to adopt the case of Waraq as a pilot for its Climate Change Adaptation Plan (PLAN-GRACC). Unfortunately, this opportunity could not be carried out due to lack of funding opportunities.

With the support of the project the Tres Cuencas Municipal Commonwealth organized two Citizen Conference events in Catac on March 15 and in Huasta on May 12, 2016 to discuss its adaptation priorities and a plan of action. The Citizen Conference meeting on May 12 was attended by authorities from sixteen rural communities of the commonwealth, the irrigation committees, seven mayors, three of the five newly elected congressmen and congresswomen for Ancash, representatives of multiple regional government agencies, as well as a representative of MINAM's Direction General of Climate Change and Water Resources (DGCCDRH). Following this event in Huasta, Tres Cuencas successfully coordinated with Ancash congressional representatives the organization of a meeting at MEF with representatives from the government agencies and programs of MINAGRI, Sierra Azul, MINAM, PCM, and- FONIPREL. These agencies and/or programs could potentially finance 'green' or water security PIPs. This example illustrates the potential of commonwealths to mobilize and connect citizens, elected authorities and technical agencies to jointly promote adaptation based in the territory.

IR. 2.3. Regional Climate Change Strategy (ERCC) of Ancash elaborated and proposed policies and actions incorporated in the Regional Concerted Development Plan (PDC)

The completion of the Ancash Regional Climate Change Strategy (ERCC) in FY 2016 was a milestone for adaptation processes in the region. TMI provided technical assistance to GORE-Ancash to (i) facilitate coordination with MINAM; (ii) implement a process of consultation with regional agencies and stakeholders; (iii) develop an ordinance to legally approve the ERCC (obtained on July 7, 2016); (iv) coordinate the incorporation of recommendations in the Concerted Regional Development Plan (PDRC); and (v) prepare a publicly accessible version of the ERCC for the dissemination of results. The activity strategy has three objectives:

1) adaptation to climate change consisting of reducing the impact of extreme events on the loss of human lives and increasing economic resiliency; 2) mitigation through reduced emission of GHGs and conservation of peatlands and forests; and 3) improving governance and stakeholder inclusion, incorporating stakeholder concerns in development plans and public investment.

Finally, TMI signed an MOU with GORE-Ancash to provide technical support to the initial implementation of the ERCC, including transferring information produced by the project to the SIAR-Ancash.

Municipalities, regional government, commonwealths and sectors of Ancash Region have the capacity to design and fund public investment projects to support ecosystem conservation and irrigation systems (Strategy 4)

IR. 2.4. Technical staff of Ancash Region, local governments and sectors have been trained and elaborated “green” and irrigation SNIP projects incorporating risk management and climate change context

A total of 28 participants (13 women and 15 men) from Ancash participated in the year-long diploma program, *Identification, Formulation and Evaluation of Public Investment Projects in the Profile Stage: Incorporating Management of Risk in a Context of Climate Change*. Participants were trained and applied their training in the preparation of public investment projects. Six of seven projects were completed—three for new or reconstructed small-scale irrigation projects and three to restore and improve ecosystem services associated with securing water supply. Participants came from the provincial municipalities of Bolognesi (2), Huaraz (2), Carlos Fermin Fitzcarraldo (2), and Recuay (2); from the district municipalities of Catac (2) and Ticllos (2); from the regional offices of CONECTAMEF (7); and technical representatives (9) from Huascarán National Park, Ministry of Agriculture. Six TMI interns from UNASAM provided data for these PIPs.

TMI provided technical support on specific aspects of risk assessment and climate change adaptation. Specifically, TMI provided the following tools to support preparation of the PIPs:

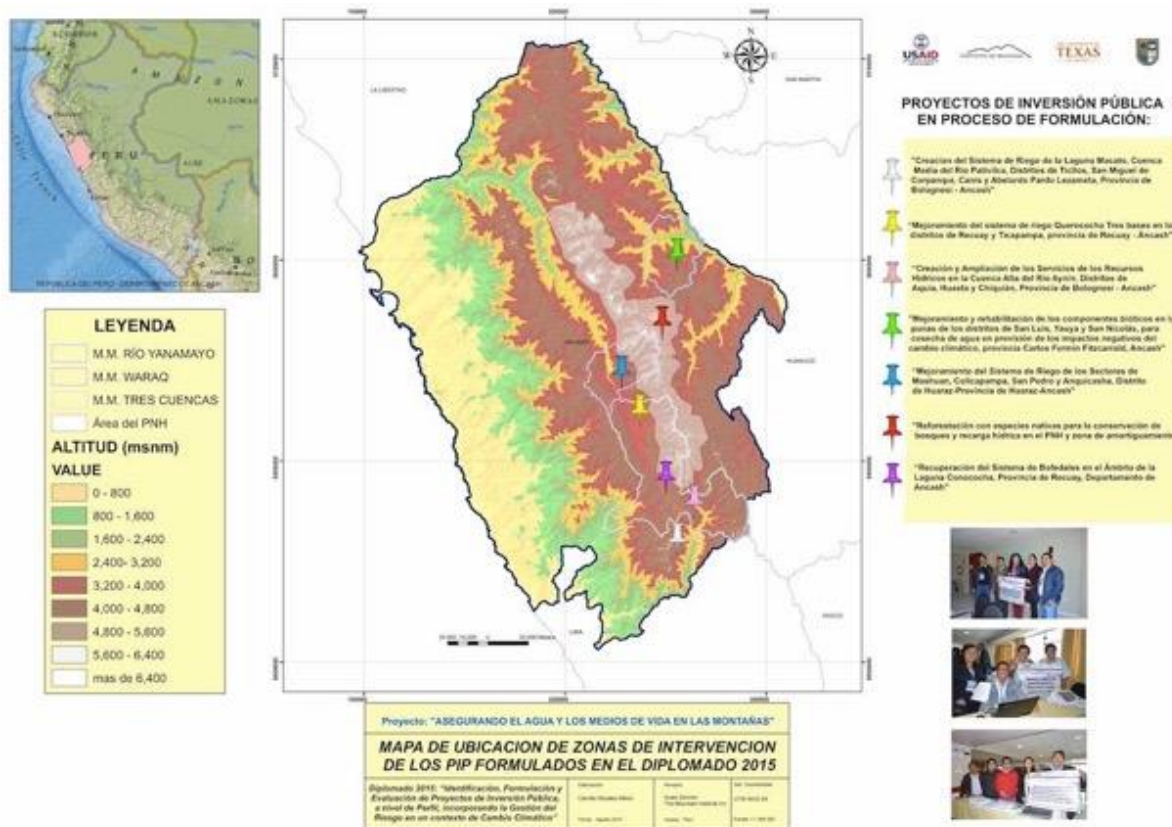
- *Preliminary guideline to incorporate peatlands [bofedales] in the National System of Public Investment* (prepared by LEUP-UNALM in cooperation with TMI). Guidelines previously validated with MINAM and DGIP-MEF (see http://mountain.pe/wp-content/uploads/2015/05/HIMAP-TMI_MINAM-BID_IMACC_Bofedales_Nota-tecnica-10-04-2015.pdf.pdf)



- *Baseline study of USAID project sites and methodology to assess risks, vulnerability and local adaptation capacities.* Study conducted by TMI in cooperation with UNESCO Science Office.
- *Climate indices for the Sierra of Ancash.* Developed by UTA for project use. The index covers drought index, how to define the start of the rainy season, intensity, and length, among others. These indices are applied to form a methodology for the analysis of climate data, to quantify climate change and its impacts in the Sierra Ancash.

UTA provided technical assistance regarding GLOF analysis required for two PIPs: (1) the GLOF Early Warning System for the city of Huaraz developed by Waraq Municipal Commonwealth and (2) the reduction of the volume of Palcacocha Lake. More specifically, UTA provided the following products:

- Paper on Lake Palcacocha GLOF modeling (January 2016) to support development of a hazard map for Huaraz including Palcacocha and other lakes (e.g., Tullparaju) in the Quillcay basin. Somos-Valenzuela, M. A., Chisolm, R. E., Rivas, D. S., Portocarrero, C., and McKinney, D. C.: Modeling glacial lake outburst flood process chain: the case of Lake Palcacocha and Huaraz, Peru, *Hydrol. Earth Syst. Sci.*, 20, 2519–2543, 2016. doi:10.5194/hess-20-2519-2016.
- Technical presentations informing the Regional Government of Ancash of these GLOF vulnerability studies.
- Technical presentation to the Palcacocha Lake Task Force (*Mesa Técnica*) to explain the modeling process for making informed decisions about the hazard map.
- Introductory workshop introducing the GLOF process chain, theory, and the steps in the process chain, directed at INDECI, CENEPRED, INAIGEM, national agencies that are required to provide technical perspectives for these projects.



Map 2. Location of public investment projects developed by Ancash participants in the Diploma Identification, Formulation and Evaluation of Public Investment Projects in the Profile Stage: Incorporating Management of Risk in a Context of Climate Change.

IR. 2.5. Model of alliance University-Government to support continuity of “hands-on” training in development of public investment projects with a focus on risk management and climate change context

Building on the experience of the diploma program *Identification, Formulation and Evaluation of Public Investment Projects in the Profile Stage: Incorporating Management of Risk in a Context of Climate Change* (see IR 2.4), TMI, MEF and the Chancellor of UNASAM discussed and agreed in September 2016 on a strategy to incorporate the diploma course into the training portfolio of the university.

IR. 2.6 SNIP “green” (grassland and wetland) and irrigation projects formulated in the Diploma have been budgeted and financed

The activities for this outcome are scheduled to start in FY 2017

Women elected authorities and local leaders with increased capacities to promote climate change adaptation (Strategy 5)



As noted in the baseline study and assessment of perceptions of self-efficacy conducted by the project, women in rural areas tend to have low levels of education, usually only primary education, often incomplete primary education. *Regidoras*, women elected by popular vote to serve in municipal councils, by contrast, tend to have completed secondary and technical education, which contributes to their roles as leaders. During FY 2016, *regidoras* completed a training and practicum on how to conduct gender

diagnostics and better understand climate change problems experienced by women in rural communities. They also provided leadership in their respective districts leveraging small funds to support projects identified by women in rural communities. The projects support for training and practice is increasing their capacity to serve the needs of women and other marginal and vulnerable groups affected by climate change.

IR. 2.7. Women authorities in local governments have proposed and implemented policy initiatives and projects to reduce climate change impact on women in their municipalities or commonwealths



During FY 2016, TMI organized workshop with REMURPE and CONECTAMEF to provide recently elected *regidoras* with the introductory legal and normative knowledge they need to be able to function effectively in their public role. TMI's capacity development strategy was aimed providing *regidoras* with the skills and motivation to identify

the needs of rural women impacted by extreme climate events or climate change in order to mobilize support to these vulnerable groups. Thus, all subsequent training by the project to *regidoras* had this orientation. The sub-set of *regidoras* that expressed interest and

commitment to the project training program represented the most rural, remote and marginal areas served by the project of San Luis, San Nicolás, Yauya. Once trained, *regidoras* conducted gender diagnostics in the rural communities of their municipality. Their next steps were to (i) designed a competition called *Iniciativas de Adaptación al Cambio Climático*, whereby small adaptation projects by women's grassroots organizations in these rural communities were presented; (ii) describe their selected initiatives to the municipal council and mayor; and finally (iii) secure financial support. *Regidoras* participated with enthusiasm and provided leadership during the process obtaining municipal funds to fund the small-scale adaptation projects endorsed by the project. Women prepared projects and defended their ideas in front of a jury composed of representatives from the local government, AGRORURAL and TMI.

The following eight projects were presented by women groups:

Community	Title of the Adaptation Initiative	# of Families	TMI-USAID contribution (USD)	Local Municipality contribution (USD)
Cardón (San Luis)	"Animalnintzicapa abonunllawan murojcuna"	25	\$882	\$662
Canchabamba (San Luis)	Greenhouse: "allitzapacuy verdurata murur siguinapa"	11	\$441	\$381
Rayán (Yauya)	Greenhouse for aguaymanto	15	\$882	\$618
Yauya	Production in greenhouse	17	\$441	\$863
Ruris (San Nicolás)	Guinea pig production in the village of Ruris	12	\$882	\$850
Llamaca (San Nicolás)	Guinea pig production in improved infrastructures	10	\$441	\$500
Huancampampa (Recuay)	Confronting climate change through home garden production	15	\$882	\$882
Collahuasi (Recuay)	Managing home gardens to adapt to climate change	15	\$441	\$588
Total			\$5,294	\$5,344

A total of 16 *regidoras* participated in the process. The six *regidoras* from the most remote and marginal areas (San Luis, San Nicolás and Yauya) were the most active and committed. Active participation of *regidoras* in the budget planning for 2017 resulted in the approval by the Provincial municipalities of Carlos Fermín Fitzcarrald and Recuay of three project profiles valued at \$88,000 dollars to continue the pilot experiences described above.

IR. 2.8. The network of women councilors (Red de *Regidoras*) disseminates its experience with national support groups or national agencies

In addition to training *regidoras*, TMI presented this activity to JUNTOS and FONCODES Food Security Project operating in the San Luis area. TMI staff discussed with FONCODES their interest in supporting the adaptation initiatives that the women councilors had identified in their municipalities. TMI also visited the MEF's office of General Public Budget to identify additional sources to finance these projects.

TMI partnered with the Peruvian think tank GRADE, which brought complementary funding to assess the opportunities and mechanisms for incorporating climate adaptation

into social programs like *JUNTOS*, *FONCODES*, *PENSION 65*. The study began in the second half of FY 2016 in the Tres Cuenas Municipal Commonwealth and will be completed by December 2016. TMI will cooperate with GRADE promoting the involvement of *regidoras* in the application of policy recommendations emerging from the results of this study. *Regidoras* were trained in the use of video cameras and produced two videos presenting their experience as elected authorities and working with community women groups.

3: IMPROVED CAPACITIES OF COMMUNITIES TO ADAPT TO CLIMATE CHANGE, IMPROVE THE HEALTH OF ECOSYSTEMS AND DEVELOP INFRASTRUCTURES THAT REGULATE WATER AND SUSTAIN LIVELIHOODS

Improving the information and knowledge and its application to design projects that improve water delivery and supply, may still fail to produce effective solutions to climate changes or to extreme climate events if local communities are not included and actions are not implemented with local leadership.

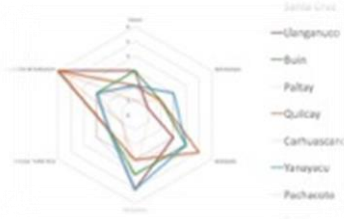
TMI cooperated with six local research groups investigating solutions to climate change related challenges, including: (i) alternative livestock fodder production in areas with irrigation downstream of grassland, or puna, ecosystems and (ii) adapting huts in the puna to withstand more extreme cold events. We also cooperated with seven rural communities to develop participatory land use plans with a focus on conserving ecosystems that supply or regulate water. Research projects are small by definition, because they involve risk, but they are implemented to test solutions that once proven can be then scaled up. Therefore, local research actions are the predecessors of larger investment projects, such as PIPs, or household investments to generate positive results. TMI promoted additional technical assessment to complement participatory research, such as an assessment of the potential for using heat stored underground to heat rural houses at low cost.

Finally, TMI implemented eight participatory local development plans and six small-scale projects with four rural communities. TMI is facilitating access for these communities to the financing options identified in these plans from the private sector (e.g. through MRSE or NGOs) or their local governments.

During FY 2016, TMI established an advocacy group, or *grupo impulsor*, to promote and lead the development of mechanisms for the retribution for ecosystem Services (MRSE) with the rural communities of Huascarán Biosphere Reserve.

The territorial approach to climate change adaptation—the project’s strategy to cooperate with and strengthen municipal commonwealths—is reinforced through this component through improved understanding and documentation of the diversity of mountain geography. During 2016 TMI started to use ESRI Story Map and other visualization tools to promote better knowledge of highland Ancash (e.g. <http://arcg.is/29zBxe7>). These virtual maps visually connect the physical conditions of the territory and climate to the actions taken to respond to climate change problems providing examples of participatory research, small projects or local development plans as tools for community adaptation.

Institutionalize in Huascarán Biosphere Reserve and Huascarán National Park 'Mechanisms for the Retribution of Ecosystem Services' (MRSE) that benefit upland communities and ecosystems that regulate water for whole basins (Strategy 6).



MRSE legislation was established after nearly 15 years of pilot experiences in San Martín and other regions of the country. The regulatory structure for this law was established only recently in July 2016. Therefore, all of the advances in Huascarán contribute to the establishment of the mechanism, understanding that the region will have to gain experience and lessons on the approach. The advocacy

group was trained and is currently operating. It is working in two sub-watersheds of the Santa River, selected as learning field sites, and is pursuing complementary actions toward greater institutionalization of MRSE, such as an ordinance from the Regional Government.

3.1. Institutionalized Mechanisms for Retribution of Ecosystems Services (MRSE) with recognized and trained advocacy group

TMI has provided technical support in the establishment of the MRSE advocacy group or *grupo impulsor*. TMI coordinated closely with Huascarán National Park, which provides the institutional and political leadership for encouraging MRSE activities in the region. Members of the *grupo impulsor* represent government agencies, such as Huascarán National Park, the management committee of the Park, INAIGEM, SERFOR, UNASAM, and SUNASS, and two NGOs, TMI (providing technical secretariat) and CARE.

The aim of the advocacy group is to be recognized not as mere sponsors of the specific sites in which MRSE actions will be promoted, but rather as an official task force that promotes MRSE, provides technical advice, and liaisons with national agencies. TMI explored two pathways to obtain high-level official recognition for the *grupo impulsor* by SERNANP and by MINAM's Direction General of Evaluation, Valuation and Financing of the Natural Heritage. In both cases, we were advised to obtain local recognition by the HNP authority. The group was thus recognized as an interest group of HNP Management Committee and incorporated MRSE in four sub-activities of the Park Management Plan. However, the *grupo impulsor* has continued to seek a more permanent form of institutionalization through an ordinance, the process for which is currently under final revision by GORE-Ancash.

TMI supported multiple activities throughout the year to strengthen capacities of the *grupo impulsor*, including: technical analysis of potential scenarios and in-depth studies of selected sites with international cooperation of the university of Amsterdam; exploring sources of funding and partners; facilitating participation on workshops organized by SUNASS in Huaraz or Lima; providing a forum for researchers who study peatlands and wetlands of HNP to share their perspectives on conservation needs for these ecosystems that regulate water (e.g. Dr. M. Polk from UTA); training seminars by MINAM to the *grupo impulsor* and stakeholders, such as EPS Chavin, SUNASS Huaraz, Irrigation

Associations (*Juntas de Regantes*), and the Potable Water Committee (JAAAPSHAN), CHAVIMOCIC, Duke Energy, and the Regional Government of Ancash.

3.2. The Advocacy Group (GI) has documented scenarios that have baseline studies to support community projects for water security.

During FY 2016 the *grupo impulsor* began detailed studies in the two pilot sites selected to build scenarios and promote MRSE actions. TMI provided technical support revising 49 studies, facilitating meetings to discuss criteria to prioritize selection of sites within the MRSE legal framework, mapping stakeholders, collecting additional, more detailed information on prospective sites, and proceeded to build detailed scenarios for the two selected sites, the sub-watershed of Quillcay and Buin. TMI prepared a summary document entitled *Compilación Sistemática de la Situación Actual en Bofedales, Bosques, Paisajes, Calidad de Agua y Praderas en la Reserva de Biósfera Huascarán, Región Ancash* [Systematization of the Current Status of Peatlands, Forests, Water Quality and Grasslands in Huascaran Biosphere Reserve].

TMI initiated a partnership with University of Amsterdam Institute of Biodiversity and Ecosystem Dynamics (IBED) to conduct a rapid assessment of the Buin watershed, similar to that which was previously conducted in the Quillcay watershed. The Quillcay watershed rapid assessment had been carried out by TMI through complementary funding from the MINAM-BID IMACC project. The assessment included a willingness to pay study by UNALM.¹ UNASAM students from the project internship program had collected data for the detailed scenarios of the Buin and Quillcay watersheds.

IR 3.3. Potential stakeholders of MRSE willing to develop cooperation agreements in the RBH

During FY 2016, activities with potential downstream contributors to the MRSE were limited until more detailed information from the selected sites could be presented without creating false expectations. TMI made a concerted effort to keep the water facility EPS CHAVIN as well as the potential coastal contributors of CHAVIMOCIC informed of progress. In preparation of activity IR 3.3, TMI has produced a one-page brochure, a poster presentation of the MRSE initiative, and a short document describing the threats to water security faced by the city of Huaraz and introducing MRSE as a potential solution. TMI has also cultivated a close relationship with SUNASS to promote participation of EPS Chavin as a key potential contributor to MRSE actions in the Santa River Basin.

IR 3.4. MRSE management committees formed in defined priority areas of the RBH

Community groups engaging in conservation of ecosystems that regulate water flow or quality must first be linked to the service beneficiaries who have confirmed commitment to providing retribution for those services. During the elaboration of the scenario studies (IR 3.3), TMI identified the Hatun Huaylas Municipal Commonwealth as a stakeholder that could lead the communication of MRSE actions with local communities and elected authorities of local governments in the Buin Watershed.

¹ See http://mountain.pe/wp-content/uploads/2015/04/HIMAP-TMI_LEUP-UNALM_PSA_Humedales.pdf

Local innovative solutions identified through participatory processes that reduce the stress on ecosystem and social and cultural attributes of community wellbeing (Strategy 7)

Adaptation to climate change will be by nature an evolving process requiring the promotion of local innovations. The main activities and outcomes identified under this project strategy aim to foster existing capacities to experiment and innovate locally.

IR. 3.5. Diagnostic information to support development of adaptation actions (IAPS, small projects, innovative tools for decision making).



Rapid Rural Appraisals of communities in the territory of municipal commonwealths, as well as more detailed localized diagnostics of farming systems and natural resources in areas of project intervention were conducted in FY 2015 (Box 1). These multiple sources of information together with the more technical studies on hydrology, land cover, water quality mapping and other information produced by UNASAM interns have been adapted to a web-based format using the ESRI ArcGis Online application Story Map. (See <http://arcg.is/29zBxe7>.)

The Story Maps are interactive atlases for adaptation to climate change. The Story Maps have a complementary and more detailed digital book version, which covers the territory of each one of the three municipal commonwealths. To date, digital books on two of the three commonwealths have been completed.

UNASAM interns were trained in the use of ArcGis Online to provide them with a tool to present the results of their climate change

Box 1. Examples of rapid rural appraisal diagnostic studies conducted by the project are:

- TMI 2015. Diagnóstico de la Sub-cuenca de Quillcay. Proyecto Asegurando el Agua y los Medios de Vida en la Montaña. Acuerdo colaborativo TMI – USAID. Informe elaborado por A. Zimmer, mayo 2015.
- TMI 2015. Diagnóstico de la Sub-cuenca de Yanamayo. Proyecto Asegurando el Agua y los Medios de Vida en la Montaña. Acuerdo colaborativo TMI – USAID. Informe elaborado por A. Zimmer, mayo 2015.
- TMI 2015. Diagnóstico de las cabeceras de la ‘Mancomunidad Tres Cuencas’. Proyecto Asegurando el Agua y los Medios de Vida en la Montaña. Acuerdo colaborativo TMI – USAID. Informe elaborado por A. Zimmer, mayo 2015.
- TMI 2015. Diagnóstico sobre las actividades agropecuarias y los medios de vida en la Comunidad Cahuide. Proyecto Asegurando el Agua y los Medios de Vida en la Montaña. Acuerdo colaborativo TMI – USAID. Informe elaborado por Madeleine Huber, Octubre 2015.
- TMI 2015. Análisis contextual de las asociaciones ganaderas de Yanatuna y Rimay Condor de la comunidad campesina San Miguel de Aquia para la investigación participativa en pastos cultivados. Proyecto Asegurando el Agua y los Medios de Vida en la Montaña. Acuerdo colaborativo TMI – USAID, mayo 2015.

And other diagnostic studies conducted with complementary funding like:

- TMI 2015. Diagnóstico de la quebrada de Quilcayhuanca: la gestión social de pastizales y ganadería dentro del Parque Nacional Huascarán. Proyecto MINAM-BID Implementación de Medidas de Adaptación en Cuencas (IMACC). Informe elaborado por V. Rondán. Proyecto Asegurando el Agua y los Medios de Vida en la Montaña. Acuerdo colaborativo TMI – USAID. Octubre 2015
- UNESCO 2015. Línea de base y metodología para analizar riesgos, factores de vulnerabilidad y capacidades adaptativas locales en la Reserva de Biosfera Huascarán. Estudio desarrollado por The Mountain Institute en acuerdo cooperativo con el proyecto “Asegurando el Agua y los Medios de Vida en la Montaña”.

adaptation studies to the general public. Trainings provided by TMI took place on January 26 and on March 8 and were complemented with on-call support. TMI staff elaborated a small handbook describing the tool and a power point presentation for the training sessions for interns.

These documents have been used as support materials in adaptation planning meetings of the municipal commonwealths. They also serve the broader objective of educating decision-makers and the public about the highly variable geographic context of highland Ancash. The Story Maps link to the information provided by external institutions which are collaborating with the project, such as SENAMHI for climate data; INEI for national statistics on population, malnutrition, etc.; UNASAM for information on internships and climate laboratories; Huascaran National Park to access their digital library; and MINAM for the national land cover map. The virtual format of the Story Maps improves the coverage and the details of the information as they become available through additional studies, supporting subsequent adaptation planning processes.

The Story Maps function as a backup to the SIAR ensuring that the information produced by the project will be widely available to the general public.

TMI is also working on a document for the entire Huascaran Biosphere Reserve that describes the general historic trends of variables that are central to adaptation, such as the evolution of natural resources, agricultural and animal production, demography, and energy use.

IR 3.6. Communities have established Participatory Action Research (IAP) actions at low cost and on priority issues that contribute to



adaptation to climate variability and change

IAPs are small scale research actions intended to reinforce the capacity of communities to respond to climate change problems with concrete solutions.

TMI provided technical support to six IAPs conducted by local research groups in the communities of Los Andes, Cordillera Blanca, and Aquia. The groups are made up of 11 to 17 members. The methodology used by TMI, *La Investigación-Acción Participativa: Guía Conceptual y Metodológica del Instituto de Montaña*, was revised for the projects, and its

Box 2. Examples of Participatory Action Research completed by peasant communities of Cordillera Blanca and Aquia:

- Develop the community land use plan and local adaptation actions. The process involved participatory mapping of the territory. The product is a local development plan responding to the risks of climate change.
- Bioremediation of water contaminated with minerals. This is a technology that was built by the community with the local research group and needs continued monitoring and adjustments.
- Improve the climatic condition of high puna huts. Testing alternatives to bricks, roofs, floors, stoves. Product: the research conducted in building climatic huts were presented to the mayor of to seek public funds to replicate the technology.
- Improvement of irrigated pastures with two research groups. The two groups are testing different combinations of fodder varieties in 24 and 28 small plots, respectively, to assess which varieties yield better. This research question is related to the perceived lower productivity of alpine grasslands and the interest to take cattle to lower altitudes and shift to breeds that produce milk for cheese and yogurt production.

application in the six cases was documented at each step in order to showcase the experience as example of an adaptation strategy based on local capacities to innovate. All IAP processes have started with a TMI-Community agreement to support the actions of local researchers.

Other project actions with communities were inspired by the IAP approach, relying on local participation to generate information and solutions to climate change. Other projects include the collection of hydrology flow data with the community of Santa Cruz in order to identify irrigation improvements with support of engineers from UTA Chapter of Engineers Without Borders and the gender diagnostics conducted by *regidoras* in several communities.

The experience of the Cordillera Blanca community restoring the water quality of the Chonta irrigation canal using bioremediation was featured in the national newspaper *El Comercio* / Revista Somos April 23, 2016, as an example of communities responding to climate change impacts and responding through local innovation. The experience and lessons learned in Cordillera Blanca are now replicated in a second case in the irrigation canal of Shallap-Huapish-Toclla in the Quillcay watershed upstream of the mountain city of Huaraz.

TMI has agreed to provide training to AGRORURAL for the IAP methodology and replicate it in three sites.



In FY 2016, TMI completed the assessment of a ground-to-air heat exchange technology whereby a 6” PVC tube buried underground at 40 cm and is used to generate warm air for the high-altitude puna huts of herders. The heat gained during the rainy season (October–December) was 5.7 °C and 11.7 °C during the dry, colder season (May–September). While this is a promising example of a very low-cost technique

requiring only a small investment for PVC tube materials, the effectiveness of the technique depends heavily on the architectural structure of the huts or rural houses so that heat gained is not lost through gaps between walls and windows. A preliminary diagnostic report is available on this as a promising cost-effective technology that could have applications in other high mountain areas that frequently experience extreme frost events, such as Puno.

IR 3.7. Research results have been shared and communicated among community groups in the area of influence.

TMI will implement activities to create awareness of local solutions to climate change in FY 2017. We have identified other NGOs working in highland Ancash with expertise in IAP methodologies such as the Belgian NGO ADG, to cooperate in farmer-to-farmer exchanges and leverage public funding support. A video capturing the experience and perspectives of local researchers will be prepared to support communication efforts.

IR 3.8. Communities and community-based groups have defined their development objectives, climatic and non-climatic threats to their territories and means of livelihood

Seven Local Development Plans (PDL) recognize and respond to the threats of climate change were elaborated by rural communities. An eighth PDL in Cordillera Blanca was elaborated as part of the IAP activities. The plans were developed using a methodology developed by the project and made available to foster adaptation in Huascarán Biosphere Reserve (see IR 3.9). The approach relies on local knowledge as a source of information to understand local climate and climate change impacts on development objectives for rural communities and small watersheds. As with IAPS, the purpose of these plans is to draw upon local initiative to drive adaptation through local research, to seek the financial or material support of local governments, and to influence the design of public investment projects (as described under objective 2). The plans were elaborated by the community groups during a three day workshop with an intermediary fourth day dedicated to a transect and participatory mapping of the local territory and climate. The plans were formulated by a group of community representatives but were discussed and endorsed by the community member assemblies. The following PDLs were elaborated this year:

- Community Canrey Grande (TMI facilitation)
- Community San Miguel de Aquia (TMI facilitation)
- Community Los Andes (TMI facilitation)
- Community Irrigation Group Santa Cruz (TMI facilitation)
- Community Tupac Yupanqui (AGRORURAL-TMI facilitation)
- Community Unión Caninaco (AGRORURAL-TMI facilitation)
- Community José Martín Sotero (AGRORURAL-TMI facilitation).

AGRORURAL has committed to the continuation of the implementation of adaptation activities in these rural communities. TMI is facilitating the process of communicating these results to local governments for promoting public investment funding (through AGRORIURAL) for plan implementation. The plans provide inputs to prepare small projects to be presented in the participatory budget or be included in AGRORURAL's portfolio of projects. TMI is also supporting the implementation of actions identified during the PDL process (described as 'small projects' under IR 3.10).

An advantage of the PDLs is that they can be connected to development and adaptation plans at varying levels, including to the Regional Climate Change Strategy (ERCC), the adaptation plans of the municipal commonwealths, and the adaptation and development plans for Huascarán Biosphere Reserve.

IR 3.9. Package of innovative tools to support decision-making and climate proofing in the design of community projects developed

Consistent with our theory of change and project mandate, we aim to build long-term resilience through improved decision-making and climate proofing in the territory of the Huascarán Biosphere Reserve. During FY 2016, TMI partnered with the UNESCO Science Office to deliver a training course entitled *Local Adaptation Plans: Theory and*

Practice (April-June 2016) to train rural extension personnel of AGRORURAL-Ancash. TMI aims to provide agencies like AGRORURAL with tools that support territory-based adaptation. The set of tools developed by TMI and used in the course of the project to support adaptation in Huascarán Biosphere Reserve include the following materials:

- Methodology for the development of climate change perception surveys in the Huascarán Biosphere Reserve. Presents a survey designed to assess perceptions in the project area and to conduct focal group discussions, with examples from the cooperative study with the UNESCO Science Office.
- Participatory Action Research (IAP): Conceptual and methodological guidelines of The Mountain Institute (Annex: systematization of IAP experiences in adaptation to climate change)
- Handbook of Local Development and Adaptation Plans. The materials are organized in two sections, one presenting the methodology and principles, and a second section presenting a step-by-step guide on how to produce these plans, including 44 field tools, some of them standard rural diagnostic or land use planning tools, revised and organized in order to facilitate analysis of ecosystems and livelihood vulnerability to climate change.
- Matrix of criteria to assess small community projects aimed at reducing vulnerability to climate change. Permits to evaluate the social, economic, environmental feasibility of ideas proposed by communities in Local Development and Adaptation Plans.
- Catalog of adaptation examples (both TMI experiences in innovation as well as other examples from other mountain regions of the world).
- Ancestral Technologies: Water Management in Cordillera Blanca and Cordillera Negra, Ancash, Peru.
- Using ESRI ArcGis on line applications to support climate change adaptation planning.

These materials will be edited in electronic book formats in FY 2017.

IR 3.10 Community projects focusing on reducing climate hazards and/or adaptation measures implemented in pilot sites (if small scale with project funds and if larger scale presented to national funding sources)

During FY 2016 TMI provided support to the following small-scale community projects, identified by communities as climate change adaptation initiatives:

Wetland Conservation Area and Ecotourism Development in the Rural Community of Los Andes, Shecllapata, Recuay.

This project is implemented through the organizational framework of the community local development and adaptation plan. The ecotourism initiative of Shirapata holistically captures their adaptation strategy. The initiative is centered on the restoration and conservation of the Shecllapata wetland which provides water to the lower agricultural areas of the community. In FY 2016, TMI provided support through UNASAM interns to assess the potential of Shirapata to develop eco-tourism activities. TMI helped the community document traditional knowledge of the territory, reconstruct agricultural calendars, produce detailed maps of the community, and document the cultural value of

its wetlands and its archeological heritage. With the participation of the community, this information was used to develop a tourism plan, signposts, and materials to promote visitation. TMI also produced a guide to train the community in the implementation of the tourism plan. By diversifying community livelihoods to capitalize on the landscape and Inca cultural remains, the community is able to transition away from extensive grazing in the higher altitudinal belts of the community. Some residents have even identified the potential value of reducing the number of cattle and sheep that graze in the alpine areas to favor the native populations of wild vicuña as another dimension of their ecotourism initiative for potential additional income.



Improving irrigation systems with the User Committee of Santa Cruz (in cooperation with Engineers Without Borders (EWB-UTA Chapter))

This project illustrates the complexity of tasks that aim to improve the efficiency of irrigation systems even for small-scale projects. The objective of the project is to identify the most efficient improvements to an existing irrigation system. Large information gaps exist for even basic irrigation system parameters, including: precipitation, sources and available flow of water from springs that could be used for irrigation, data on water availability in the canal along the year, the exact area under irrigation, detailed map of properties and irrigation plots, agronomy and soil conditions and best suitable irrigation technologies. Once this basic information was collected, it was possible to identify the areas that could not be served by an extension or improvement of the existing system (e.g. Pacllash, Okupampa and Llushu). Data collection was initiated in FY 2015 and continued over 2016. EWB-UTA analyzed the data and proposed a set of modifications to improve a system that adapts to the actual conditions of water availability and low-cost solutions. Two actions were identified as best initial low-cost alternatives: (i) restoring the water retention capacity of three small community reservoirs; (ii) replacing water outlet valves; (iii) reducing the loss of water in sections of the irrigation canals; and (iv) reinforcing or modifying the walls of the reservoirs to minimize bank erosion and sedimentation. In this project the User Committee, rather than the village government or *centro poblado*, organizes the administration of the irrigation system. The Users Committee discussed the alternatives and agreed to start implementation in FY 2017.

Implementing a bioremediation system in the Campanayoc and Quinchup-Pinos sectors of the Shallap-Huapish-Toclla irrigation canal.

The Shallap Huapish-Toclla canal built in 2015 is located above the city of Huaraz and was built with funding from the national program MIRIEGO. The main canal has been completed and secondary branches are scheduled for construction. Mineral contaminants resulting from glacier recession and high natural mineral soil loads is a growing problem that must be resolved before further construction continues. A pilot bioremediation study was implemented by a local research community in Cordillera Blanca (see IR 3.6). Lessons learned from the pilot experience will be applied to the Shallap-Huapish-Toclla irrigation canal which is experiencing the same problem of contamination. During FY2016, TMI provided technical assistance to design the proposal for a public investment project for the

Provincial municipality of Huaraz. TMI provided technical support to Santa Cruz to facilitate the collection of basic hydrologic data as an initial step in analysing options and assessing the potential value of bioremediation.

Improving the operation, maintenance and technology of the irrigation systems of Shirapata hamlet to protect bofedal restoration in Huascarán National Park.

The village of Shirapata is located along the border of Huascarán National Park (HNP). The households of Shirapata had previously drained a wetland inside the Park which was subsequently abandoned as a result of negotiations. The nearby wetland is now under restoration with technical support of TMI through a collaborative project with USFS. TMI and HNP staff are cooperating with the families of Shirapata to improve the village water irrigation systems as an initiative eligible for retribution for their acceptance to retire their animals from the wetland under restoration. In FY 2016, TMI completed a socio-economic, landscape, and climate diagnostic of Shirapata and designed the intervention with local families.

Implementing pressurized irrigation in the Paquishca sector of the Rural Community of Coyllur

The community of Coyllur is located in the Quilcay valley above Huaraz, in the territory of Waraq. Building upstream-downstream linkages is important in promoting community conservation of wetlands to protect the supply of water for the city of Huaraz. During FY 2016, TMI provided technical assistance to assess the feasibility activities to improve the irrigation systems of the Paquishca sector in the Rural Community of Coyllur. Implementation of the project will start in FY 2017.

IR 3.11. Financial institutions have incorporated, in its portfolio of funding, projects developed with communities under an ACC focus

TMI explored opportunities to provide funding for the community projects identified in the Local Development and Adaptation Plans developed by communities (see IR 3.8). TMI cooperated with the User Committee of Shallap-Huapish-Toclla to prepare a project note that was introduced in the 2016 Participatory Budget of Huaraz Province. Although the project was ranked among highest priority projects, funding was re-directed to preventive measures in anticipation of expected El Niño extreme events in 2016. TMI also identified opportunities with the NGO APORTES to finance small scale projects and facilitated preparation of the following projects:

- Construction of 02 reservoirs in Chonta Punta and Raquina (Acocancha, in Cordillera Blanca Community, Olleros District, Huaraz, Ancash).
- Expansion of the Irrigation Canal Coñasa in the Community of Andes de Recuay (Recuay District, Ancash).
- Implementation of water conducted by tube for Irrigation Committee in the sectors of Cochapunqu, Cachilpucru, Pie de Huashta, Cebada Pampa y Tukuhuaín in Santa Cruz"
- Implementation of improved irrigation systems in Tallenga, Community of Aquia"

TMI also signed an agreement with the national agencies operating in Huascarán Biosphere Reserve to provide their support in implementing the adaptation projects identified by the communities. These national and regional agencies include Huascarán National Park, National Service of Forestry and Wildlife (SERFOR), Sub-sectorial

Program of Irrigation (PSI), National Service of Sanitation in Agriculture), Local Water Administration Huaraz (ALA-ANA), UNASAM and AGRORURAL.

IR 3.12. Technological institutes (*Institutos Tecnológicos*) incorporate research methods and professional training contextualized for the implementation of small projects and IAP with an adaptation to climate change (ACC) approach

Technological institutes are educational organizations whose rural extension workers work closely with communities. TMI signed an agreement with the Technological Institute of San Nicolas and the Municipality of San Nicolas to train students in participatory research and climate change adaptation. TMI implemented a preliminary workshop to introduce the IAP methodology innovation as a strategy to adapt to climate change. A second workshop provided training on IAP steps and students from the institute implemented a study of golden berry (*aguaymanto*) production during FY2016.

Implementation Challenges

As the Securing Mountain Water and Livelihoods project enters into its last four quarters of implementation, TMI will focus on challenges relating to sustainability and replication of the project outcomes. TMI will concentrate on opportunities emerging from the work of this project to foster consolidation of positive effects.

Many of the implementation challenges of the project relate to developing the institutional environment of Ancash Region. TMI is cooperating with academic, elected governments, and technical agencies to promote better planning, funding and delivery of adaptation in Ancash.

The project's response to institutional challenges in the FY 2017 will be to communicate the progress achieved by national and regional partner organizations and the positive foundations of inter-agency and public-private cooperation supported by the project. In FY 2016, TMI began the process of developing communication materials in order to demonstrate the practical, positive impacts of investments in time and resources into information gathering and sharing and investments in building capacities to prepare for and respond to climate changes.

Specific challenges faced by the project and the project's responses to these identified challenges are detailed below.

1. Regional and governmental instability. Elected Governor W. Ríos was due to start his term in January 2015, but his inauguration was blocked by the National Electoral Jury (JNE) until March 2015. He was then separated from office again in September 2016. During this 18-month period, the turn-over of executive government technical staff was high and decision-making at this level of government was handicapped.

Response. The project's response to this challenge during FY 2016 was to work closely with the Regional Council Commission on Natural Resources and Environmental Management with Chairman Mr. E. Rimac to obtain the Commission's political support

within the executive offices. Additionally, TMI staff cooperated closely with MINAM to encourage action at GORE, which resulted in the successful completion and approval of the Regional Climate Change Strategy (ERCC) as a regional ordinance. TMI will cooperate with MINAM and the Regional Council group on the environment to push for the approval of two additional regional ordinances currently under consideration by the Regional Government to permanently establish the environmental information system, SIAR, and a multi-stakeholder committee to support implementation of MRSE in Ancash. Project communication actions underlie the ERCC accomplishment and other project advancements for Ancash in climate change adaptation, such as the elaboration of the first ‘green’ public investment projects in Peru which will in themselves serve as incentives to accelerate the above ordinances.

2. Municipal Commonwealths and Municipalities. Ancash, with 166 districts, is the most fragmented region of Peru. Fostering cooperation between multiple local governments is a strategy to promote public investment in adaptation measures that have territory-wide impacts. More than ten municipal commonwealths have been created in the Ancash highlands as a response to fragmentation and to national budget allocation norms that favor large-scale public investment projects. Unfortunately, it is difficult for most commonwealths in Ancash to move beyond the legal establishment phase into the operational phase with sufficient direct funding and support from their member local governments. Of the three municipal commonwealths with which the Securing Mountain Water and Livelihoods project cooperates, two—Waraq and Tres Cuencas—have been able to achieve conditions to operate effectively. One of the three commonwealths—Rio Yanamayo—was unable to obtain support from its members to move into an operational state. Thus, TMI shifted activities to establish agreements with the provincial governments of the commonwealth. Despite the shift, TMI was able to continue documenting the information on territory, climate impacts, and development and adaptation goals for the Rio Yanamayo commonwealth with the expectation that it will eventually become operational.

The Waraq and Tres Cuencas commonwealths have demonstrated multiple project successes. Both have been granted approval by MEF to receive funds and have established offices for project formulation (UF) and project planning and investment (OPI). Both have also produced public investment projects with support of the TMI-USAID project. However, the commitment and financial backstopping of municipal members to the commonwealth remains a challenge. For example, the manager of the Waraq commonwealth was renounced when salary payments were delayed for several months.

A similar situation was observed during the implementation of the diploma course for the elaboration of PIPs for irrigation and ecosystem service. Despite having signed letters of agreement with the Ministry of Finances and TMI to support staff and invest resources for field work and data collection, mayors in several cases failed to deliver as promised.

Response. In order to motivate the mayors of the commonwealths of Waraq and Tres Cuencas, the project will showcase successes to date in order to demonstrate that the investments made will be able to launch projects and leverage additional funds that

would not be obtainable if they were to work independently. TMI will provide technical assistance when possible to obtain approval and funding for the PIPs in the commonwealths' portfolios so that through these funds the commonwealths will have grounds to request support from their members. TMI has conducted many meetings with mayors in search of their support and will continue to do so.

3. Universidad Nacional de Ancash Santiago Antunez de Mayolo (UNASAM). The project goal of marshaling researchers at UNASAM to compete for tax canon funds for projects dedicated to climate change was difficult to advance due to structural difficulties of the university institutional setting, culture, and existing norms that disincentive professors to participate in research. The option of partnering with CONCYTEC to manage canon funds for research was explored unsuccessfully.

Response. TMI has partnered with national and international universities interested in climate change adaptation in mountain environments, participating in multiple research competitions (See 1.6). There are now two long-term research initiatives on the conservation and management of mountain ecosystems that will provide opportunities for UNASAM students and faculty to participate in research. We will continue building this research network involving the UNASAM community to the extent possible.

4. IV. PROJECT CONTEXT AND SUSTAINABILITY

Political instability of the Regional Government of Ancash presents a great challenge for the operation of the Securing Mountain Waters and Livelihoods project. The Governor of Ancash was eventually removed by the National Electoral Jury (JNE) shortly after the closing of the present Fiscal Year 2016. This brought about a change of the head of the Office of Natural Resources and Environmental Management, the project's main technical counterpart. TMI is taking measures to respond to this challenge as described previously. TMI is confident that the ordinances required to implement the SIAR will materialize. There are no other significant issues that may impinge on project implementation.

As we enter into the last year of implementation of the project, strengthening the institutional alliances developed by TMI to implement the project will be a priority. To the extent possible, these partnerships will be promoted in line with the vision of Huascarán Biosphere Reserve (HBR).

For the first component of the project—increasing capacities within Ancash to produce information and knowledge that inform policies and actions to support climate change adaptation, TMI has identified information sharing mechanisms that are complementary to the SIAR system. TMI signed an MOU with INAIGEM to provide training on the methods and tools used by UTA to assess the risk of Glacial Lake Outburst Floods (GLOF). INAIGEM is also able to catalogue and share publicly all information collected by the project through its digital library. TMI has begun similar conversations with SERNANP regarding an agreement for information sharing. TMI will continue to summarize the most relevant information for adaptation in the highland territories of

Ancash in ESRI Arcview Online Story Map to make key information as widely available as possible.

TMI will also explore opportunities to institutionalize the internship program with UNASAM by and through local partners, including the private sector. The internships have been an effective and low-cost mechanism to respond to the lack of basic environmental and social information required for adaptation in mountain regions of Peru. TMI is confident in the continuation and possible expansion of this action. Regarding component two of the project—increasing capacities within Ancash to elaborate public investment projects that contribute to climate change adaptation, TMI, UNASAM and MEF have agreed on a road map for transferring the diploma training program on the National System of Public Investment (Sistema Nacional de Inversión Pública, SNIP) and climate change to UNASAM, thus taking initial steps toward long-term continuity for this outcome.

For the last component of the project—implementing actions that contribute to climate change with mountain communities, TMI established a partnership with AGRORURAL, which received training on the design of local development and adaptation action plans and on the development of those plans with three communities. To the extent possible, TMI will seek opportunities to consolidate these pilot sites and expand the actions with AGRORURAL. TMI has also partnered with GRADE, which has contributed complementary funds to incorporate climate adaptation actions into social programs in the Tres Cuencas watershed through mechanisms, such as JUNTOS, FONCODES, PENSION 65 and national organizations that work with mountain communities specifically targeting populations that are most vulnerable, socially and economically.

5. V. PROJECT MANAGEMENT

TMI requested and received a no-cost extension of the USAID grant until September 30, 2017. The activities that could not be advanced as planned in the project schedule were those closely connected with the political instability of the Regional Government of Ancash and the normative changes in public universities. TMI will complete the targets and outcomes expected on time. The last year of the project will focus on communicating results in Ancash as concrete products of the Securing Mountain Water and Livelihoods project.

The project team will complete field activities in June. During July and August 2017, TMI will carry out an external evaluation exercise in close coordination with USAID on preparing the SOW and selection of the evaluation team.

Monitoring and Evaluation

Overview

The monitoring and evaluation office coordinated the preparation of the Annual Work Plan which incorporated adjustments as suggested by the project reviews in April and June 2015 and the elaboration of a Theory of Change. The monitoring and evaluation office participated in weekly meetings of the management team and project and COP and coordinated with leaders of the three

project components and communication. On a weekly basis the officer synthesized a digital calendar of project activities. Each month the officer developed and revised monthly activity reports and he gathered the means of verification for the products reported. The information in the monthly reports was transferred each quarter to a tracking table of project products and USAID indicators. Relevant reports and files were saved to a Dropbox folder. A selection of main documents was loaded to the project's Moodle platform. The office prepared a quarterly monitoring report which was used to elaborate the quarterly and annual report to USAID.

Document Supports	Name	Action
Project management	Theory of Change: Conceptual Framework and Results Chain by Component	Data upload to prepare results chain using Miradi software
Project management	1 Annual Work Plan Oct 2016 – September 30, 2017	Excel spreadsheet for the product matrix, including outcomes, indicators, activities and sub-activities. The Annual Work Plan sub-activities are revised each quarter and adjusted when needed
Project management	USAID Indicators Tracking Table	Quarterly measurement of USAID indicators using Excel spreadsheets by component and the indications of the PMP
Project management	Inputs for 4 Quarterly Report	Progress Report 2014-2016
Project management	4 Quarterly monitoring reports	Monitoring analytical reports based on monthly reports
Project management	Inputs for the Annual Report October 1, 2015 to September 30, 2016	Final monitoring report Oct 1, 2014 – Sept 30, 2015

Tracking Products and Detailed Implementation Plan

Annex A “Tracking Table of Project Products” provides monitoring information at the level of sub-activities. The monitoring and evaluation officer compiles the means of verification for these sub-activities, discussing with the management team and staff responsible for each project component any adjustment necessary at this level of implementation during the year.

Success Stories

Annex B “Success Stories Quarter July – September 2016” presents two success stories. The first story describes the experience and perspective of Mss María Quiñonez, one of hundreds of users of the Shallap-Huapish canal who have been working to design a bioremediation project to eliminate minerals from the water in their irrigation canal. The second story presents the views of Mss Maricela Sánchez one of the 22 graduates from the diploma course on irrigation and ‘green’ public investment projects.

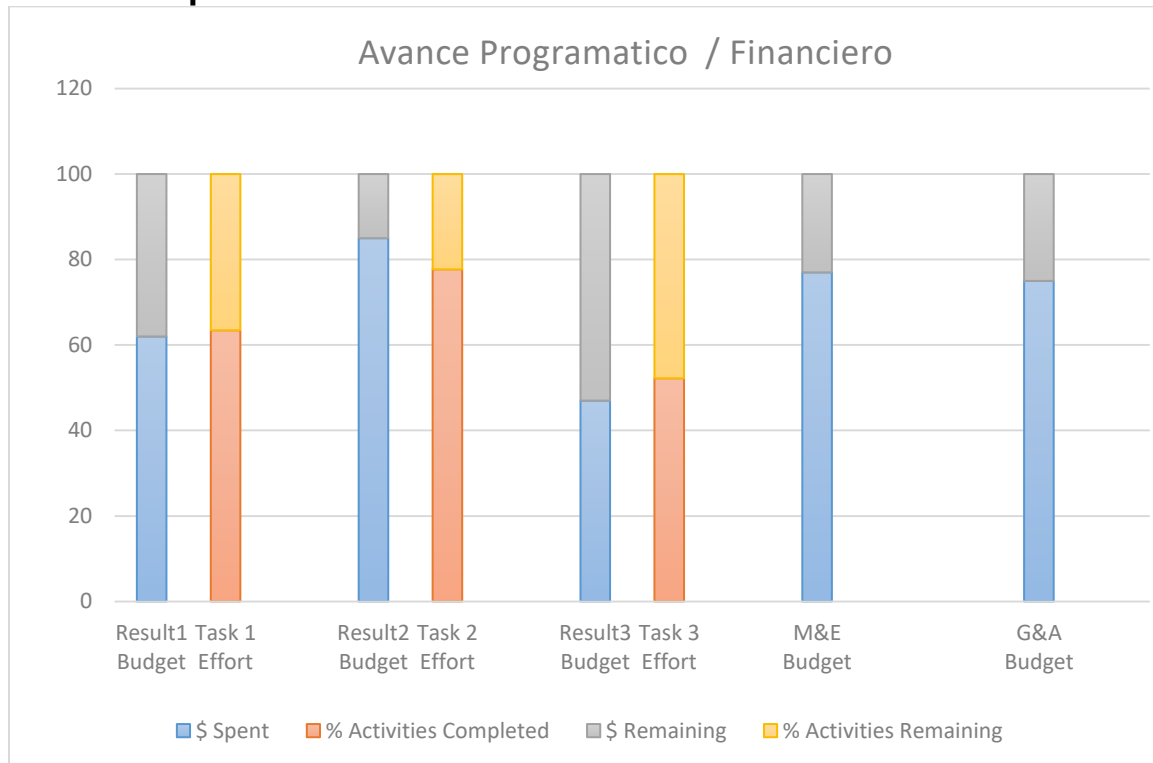
6. VI. FINANCIAL REPORT

The Annual Work Plan October 1, 2015 – September 30, 2016 had planned to spend the \$1,286,842 under the assumption that the project would have to conclude April 07, the original closing date according to contract with USAID Peru. TMI executed \$965,409 because certain activities could not be implemented due to political factors outside control of the project. TMI requested and received a no-cost extension to September 30, 2017.

Financial implementation at the Result level

		Financial Execution						Physical Execution
Item	Description	Annual Year Oct 2015-Sep 2016			Project Total April 2014 - September 2017			Accumulated April 2014 - September 2016
		Planned	Executed	%	Planned	Executed	%	%
R1	Improved knowledge and management of territories, ecosystems	296,358	115,078	39%	545,540	337,276	62%	63%
R2	Public Funds for water security	181,377	95,761	53%	199,697	170,145	85%	78%
R3	Improved capacities of communities to adapt to climate change,	182,653	231,274	127 %	716,267	333,872	47%	52%
M&E	Monitoring and Evaluation	85,999	69,894	81%	161,066	123,834	77%	-
T -G&A	Technical, Management and Administration	540,455	453,403	84%	1,289,628	971,277	75%	-
TOTALES		1,286,842	965,409	75%	2,912,199	1,936,405	66%	

Financial implementation at the Result level



Detailed financial implementation

Item	Description	Financial Execution			Physical Execution
		Project Total April 2014 - September 2017			Accumulated April 2014 - September 2016
		Planned	Executed	%	%
Result 1	Improved knowledge and management of territories, ecosystems and hydrologic infrastructures reduces risks and impacts of climate change in highland Ancash Region	545,540	337,276	62%	63%
IR 1.1.	The Regional Environmental Information System (SIAR) is operating and receives information from members of the climate Information Platform, UNASAM and other sources	150,550	96,103	64%	63%
IR 1.2	Center of Environmental Research for Development (CIAD) is a source of hydro-climatic information for the SIAR	74,362	50,273	68%	56%
IR 1.3	Institutions and communities have access to environmental and hydro-climatic information through SIAR	39,724	4,992	13%	15%

		Financial Execution			Physical Execution
Item	Description	Project Total April 2014 - September 2017			Accumulated April 2014 - September 2016
		Planned	Executed	%	%
IR 1.4	Training program on Climate Change Adaptation implemented has strengthened the capacities of students and faculty at UNASAM to support adaptation actions in Ancash	97,123	72,760	75%	75%
IR 1.5	Participants of the Training Internship in climate change adaptation are qualified to generate necessary, high-quality information	108,737	71,622	66%	66%
IR 1.6	Cooperative Research Group in Adaptation (GCI) in High-Mountain Ecosystems implements climate change adaptation projects in Ancash Region	39,794	22,130	56%	56%
IR 1.7	UNASAM recognized as provider of information and technical assistance for climate change adaptation in Ancash	20,250	13,513	67%	67%
IR 1.8	Develop a system for collecting and reporting water quality information to rural communities through students using smartphone applications	15,000	5,884	39%	40%
Result 2	Public Funds for water security in high-mountain communities of Ancash obtained	199,697	170,145	85%	78%
IR 2.1	Municipal Commonwealth Support Group constituted	50,105	48,699	97%	78%
IR 2.2.	Local Adaptation Plans of Action (PAAL) developed and updated for the pilot Municipal Commonwealths	30,105	24,005	80%	60%
IR 2.3	Regional Climate Change Strategy (ERCC) of Ancash elaborated and proposed policiess and actions incorporated in the Regional Concerted Development Plan (PDC)	16,409	14,300	87%	75%
IR 2.4	Technical staff of Ancash Region, local governments and sectors have been trained and elaborated 'green' and irrigation SNIP projects incorporating risk management and climate change context	52,279	51,912	99%	92%
IR 2.5	Model of alliance University-Government to support continuity of 'hands-on' training in development of public investment projects with a focus on risk management and climate change context	9,048	2,041	23%	14%
IR 2.6	SNIP 'green' (grassland and wetland) and irrigation projects formulated in the Diploma have been budgeted and financed	2,495	858	34%	37%

		Financial Execution			Physical Execution
Item	Description	Project Total April 2014 - September 2017			Accumulated April 2014 - September 2016
		Planned	Executed	%	%
IR 2.7	Women authorities in local governments have proposed and implemented policy initiatives and projects to reduce climate change impact on women in their municipalities or commonwealths	29,377	23,868	81%	80%
IR 2.8	The network of women councilors (Red de Regidoras) disseminates its experience with national support groups or national agencies	9,879	4,464	45%	39%
Result 3	Improved capacities of communities to adapt to climate change, improve the health of ecosystems and develop infrastructures that regulate water and sustain livelihoods	716,267	333,872	47%	52%
IR 3.1	Institutionalized Mechanisms for Retribution of Ecosystems Services (MRSE) with recognized and trained advocacy group	41,408	36,395	88%	72%
IR 3.2	The Advocacy Group (GI) has documented scenarios that have baseline studies to support community projects for water security.	39,878	39,933	100%	100%
IR 3.3	Potential stakeholders of MRSE willing to develop cooperation agreements in the RBH	43,218	14,563	34%	42%
IR 3.4	MRSE management committees formed in defined priority areas of the RBH	39,818	0	0%	0%
IR 3.5	Diagnostic information to support development of adaptation actions (IAPS, small projects, innovative tools for decision making)	41,120	39,630	96%	97%
IR 3.6	Communities have established Participatory Action Research actions (IAP) at low cost and on priority issues that contribute to adaptation to climate variability and change	97,698	48,990	50%	51%
IR 3.7	Research results have been shared and communicated among community groups in the area of influence.	46,702	4,691	10%	18%
IR 3.8	Communities and community-based groups have defined their development objectives, climatic and non-climatic threats to their territories and means of livelihood	44,939	32,689	73%	81%
IR 3.9	Package of innovative tools to support decision-making and climate proofing in the design of community projects developed	43,218	17,723	41%	49%

Item	Description	Financial Execution			Physical Execution
		Project Total April 2014 - September 2017			Accumulated April 2014 - September 2016
		Planned	Executed	%	%
IR 3.10	Community projects focusing on reducing climate hazards and/or adaptation measures implemented in pilot sites (if small scale with project funds and if larger scale presented to national funding sources)	189,540	80,207	42%	52%
IR 2.11	Financial institutions have incorporated, in its portfolio of funding, projects developed with communities under an ACC focus	41,320	8,645	21%	65%
IR 3.12	Technological institutes (Institutos Tecnológicos) incorporate research methods and professional training contextualized for the implementation of small projects and IAP with an adaptation to climate change (ACC) approach	47,408	10,406	22%	47%
M&E	Monitoring and Evaluation	161,066	123,834	77%	
G&A	Technical, Management and Administration	1,289,628	971,277	75%	
	TOTALES	2,912,199	1,936,405	66%	

Detailed financial implementation



Products and Means of Verification (Quarter July – September 2016)

Annex	Products and other means of verification
1	Estrategia Regional de Cambio Climático de Ancash – Versión Amigable (MINAM – GORE – TMI)
2	Ordenanza Regional de la Aprobación de la ERCC (Agosto del 2016)
3	Protocolo de pasantías para estudiantes universitarios en ACC
4	Informes Finales de Pasantía (Segunda Promoción)
5	Reporte Final de Índices Climáticos – UTA
6	Reportes Mensuales de la Universidad de Texas
7	Tríptico del CIAD y Díptico Grupo de Cooperación Interinstitucional
8	Informe de Capacitación en ACC a Estudiantes Universitarios de la UNASAM (Julio del 2016)
9	Memoria de la Reunión con los docentes de la Universidad de Amsterdam (Julio del 2016)
10	Plan de comunicación del Proyecto Agua Segura para Foro de Glaciares (Julio del 2016)
11	Memoria de la Participación del TMI en el Foro de Glaciares
12	Convenio entre la Mancomunidad Tres Cuencas y The Mountain Institute para implementar acciones en ACC
13	Memoria del Taller de Actualización del Plan de Adecuación Ambiental Local de la Mancomunidad Tres Cuencas
14	Módulos (del 0 al 5) del Diplomado en Proyectos de Inversión Pública con Enfoque de Adaptación al Cambio Climático (MEF – TMI – UNASAM)
15	Brochure #1 de las Pasantías Universitarias en ACC
16	Plan de Adaptación al Cambio Climático de la Mancomunidad Tres Cuencas (Documento borrador)
17	Acta de reunión para la Transferencia de la Metodología del Diplomado en PIP a la UNASAM
18	Plan de Trabajo para iniciar el Proceso de Transferencia de la Metodología del Diplomado a UNASAM
19	Convenio TMI con la Municipalidad Provincial de Carlos Fermín Fitzcarrald para la elaboración del PAAL
20	Acta de conformación Grupo de Trabajo Regional para la implementación de la Estrategia Regional de Cambio Climático
21	Memoria de la Semana de las Mancomunidades Municipales organizada por el Proyecto Agua Segura (Abril 2016)
22	Acta de Reunión con Asesores de Congresistas por Ancash
23	Memoria de Talleres de Fortalecimiento de capacidades en género y CC (Informe de Consultoría)
24	Pequeños Proyectos en ACC con grupos de mujeres presentados y aprobados a las Municipalidades Provinciales y al TMI
25	Carta de Incorporación de la Gerencia de Recursos Naturales al Grupo Impulsor de MRSE
26	Relación de Actores de la subcuenca Quillcay y Buin para Sitios Pilotos de MRSE
27	Ordenanza para reconocimiento del Grupo Impulsor del Gobierno Regional de Ancash (Norma Oficial Publicada en El Peruano)
28	Análisis contextual de las Comunidades donde se desarrollará el PDL (Documento)
29	Plan de Desarrollo Local de la CC Cordillera Blanca (Documento)
30	Plan de Desarrollo Local de la CC Los Andes (Documento)
31	Plan de Desarrollo Local de la CC Santa Cruz (Documento)
32	Plan de Desarrollo Local de la CC Canrey (Documento)
33	Experiencia de investigación en Chozas Climáticas (Documento)
34	Tríptico del tubo aire – sol – tierra para chozas climáticas (Documento)
35	Sistematización experiencias en Investigación Acción Participativa – propuesta (Documento)
36	Propuesta para el Sistema Riego en el CP de Coyllur – Pequeños proyectos (Documento)
37	Propuesta para el Sistema de Biorremediación en la localidad de Shallap (Documento)
38	Propuesta de descolmatación de la laguna Wilcacocha (Documento)
39	Propuesta del Sistema de Biorremediación del CP de Campanayoc (Documento)
40	Directorio Fuentes de financiamiento para las Comunidades (Propuesta)
41	Manual Georreferenciación de la Mancomunidad Municipal de Yanamayo (Documento)
42	Manual Georreferenciación de la Mancomunidad Municipal de la MMTC (borrador)
43	Paneles informativos de turismo en Shecllapata (Propuesta)
44	Plan de Evaluación del proyecto Asegurando el Agua y los Medios de Vida (Documento)
45	Afiches de avances Proyecto Agua Segura (presentados en el Foro de Montañas (Documento en PDF)

Annex A. Tracking Table of Project Products

1. Improved knowledge and management of territories, ecosystems and hydrologic infrastructures reduces risks and impacts of climate change in highland Ancash Region

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R1	Improved knowledge and management of territories, ecosystems and hydrologic infrastructures reduces risks and impacts of climate change in highland Ancash Region																
R.1.1.	The Regional Environmental Information System (SIAR) is operating and receives information from members of the “climate Information Platform”, UNASAM and other sources.																
A.1.1.1.	Establishment and operation of the advocacy group of the "climate information platform"	Agreement documents	1	1													
S.A. 1.1.1.1	Explore information supply and demand groups	Report	1	1										1	1		
S.A. 1.1.1.2	Map stakeholders	Report	1	1										1	1		
S.A. 1.1.1.3	Establish advocacy group	Work Plan	1	1										1	1		
A.1.1.2	Implementation of a regional environmental information system (SIAR) ...	Managemen t Tools	7		5			0.6	0.6	2.8	2.8	1.6		5	3.4	1.6	
S.A. 1.1.2.1	Communication with GORE Ancash to implement SIAR and staff	Documents	1		1	0	0	0	0	0	0	1	0	1	0	1	
S.A. 1.1.2.2	Develop climate indexes highland Ancash	Reports	1		1	0	0.2	0.2	0.2	0.6	0.6	0.2	0	1	1	0	
S.A. 1.1.2.3	Develop watershed analysis (Study case Shallap)	Documents	1		1	0	0.2	0.2	0	0.6	0	0.2	0.2	1	0.4	0.6	
S.A. 1.1.2.4	GLOF map of risks in CB (input for SNIP risk analysis)	Documents	1		1	0	0.2	0.2	0.2	0.6	0.2	0.2	0	1	0.6	0.4	
S.A. 1.1.2.5	Case study: hydrology mapping (input for SNIP risk analysis): with interns	Documents	6	2	4	2	2	0	0	2	2	2	2	6	6	0	
S.A. 1.1.2.6	Document with recommendations on practical use of UNASAM internships	Documents	1	0	1	0	0	0	0	0	0	1	0	1	0	1	
A. 1.1.3.	Improve management instruments of the environmental research center for development (CIAD)...	Perceived improve- ment	Base Line (BL)	BL	20					10	5	10	0	LB	5		
S.A. 1.1.3.1	Share instruments developed by UTA & project with the platform	Presentatio ns	4		4	0	0	0	0	3	2	1	0	4	2	2	
S.A. 1.1.3.2	Cooperation with SENAMHI (data for SIAR)	Visits	4		2	1	1	1	1	0	0	0	0	4	2	2	
S.A. 1.1.3.3	Assistance to CIAD to coooperate with SENAHMI	Reports	1		1	0	0	0	0	1	0.5	0	0	1	0.5	0.5	
A. 1.1.4	Implementation of climate information for SIAR through project and various contributing suppliers of information	Agree- ments	4		2			1	0	0	1	1	0	4	1	3	
S.A. 1.1.4.1	Logistic support to platform	Reports	5	3	2	3	3	1	0	0	0	1	0	5	3	2	
S.A. 1.1.4.2	Platform meetings to cooperate with SIAR	Reports	2		2	0	0	1	1	0	0	1	0	2	1	1	
S.A. 1.1.4.3	Sign agreements to support SIAR	MDE	5		3	0	0	0	0	0	2	3	0	5	2	3	

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R.I. 2.	. Center of Environmental Research for Development (CIAD) is a source of hydro-climatic information for SIAR																
A. 1.2.1.	Improve cooperation of the Center of Environmental Research for Development (CIAD) with SIAR, INIGEM or other information providers in Ancash	Work Plan	1		1			0.5	0	0.5	0			1	0	1	
S.A. 1.2.1.1	Sign agreement with UNASAM (CIAD y LCA e INAIGEM)	Agreements	4		4	0	0	3	1	1	0	0	1	4	2	2	
S.A. 1.2.1.2	Develop SOW to develop business plans	SOW	1	1	0	1	1	0	0	0	0	0	0	1	1	0	
S.A. 1.2.1.3	Business Plans for LCA y CIAD (cooperation with INAIGEM)	Plans	1		1	0.5	0.5	0	0	0.5	0	0	0	1	0.5	0.5	
A. 1.2.2.	Implement management plans of CIAD laboratories through innovative and sustainable approaches	% plan implemented	100		40					20	0	20	0	100	0	100	
S.A. 1.2.2.2	Supervise implementation of plan and support it	Reports	8		4	0	0	0	0	3	0	1	4	8	4	4	
S.A. 1.2.2.4	Seek funding sources to support info flow to SIAR (prvatyse sector or public)	Funding sources	8		4	0	0	0	0	3	0	1	4	8	4	4	
A. 1.2.3.	Generation of certified hydro-climatic information and services according to the demands of users of SIAR	New contracts	5		2			0.5	0.5	0.75	0	0.75	0	5	0.5	4.5	
S.A. 1.2.3.3	Small contracts for CIAD & LCA: information for SIAR and SNIP	Contracts	2		2	0.25	0	0	0	0.5	0	1.25	0	2	0	2	
S.A. 1.2.3.4	Communication actions: support CIAD	Accions	2		1	0	0	0	0	0	1	2	0	2	1	1	
R.I. 3.	. Institutions and communities have access to environmental and hydro-climatic information through SIAR																
A. 1.3.1.	Support development of cooperation agreements between MINAM and GOR Ancash to establish SIAR	SIAR operational	1		1					1	0			1		1	
S.A. 1.3.1.1	Meetings to set up system	Reports	2	2	0	2	2	0	0	0	0	0	0	2	2	0	
S.A. 1.3.1.2	Work Plan SIAR GORE Ancash	Actions in work plan	10		5	0	0	0	0	10	0	0	5	10	5	5	
S.A. 1.3.1.3	Coordinate training with MINAM for SIAR GORE Ancash teams	Training workshops	3		1	1	1	0	0	1	0	0	0	3	1	2	
A. 1.3.2.	Provide relevant information to potential stakeholders on adaptation to climate change and dissemination of the available information at SIAR and in partnership with UNASAM/INAIGEM	users in web - year	1000		1000					1000	0	0	0	1000	0	1000	
S.A. 1.3.2.1	Facilitate and support agreements to provide information to SIAR by platform	Agreements	1		1	0	0	0	0	1	0	1	0	1	0	1	
S.A. 1.3.2.2	Technical assistance to SIAR (MINAM backstopping)	Support Activities	12		12	0	0	0	0	5	0	0	0	12	0	12	
S.A. 1.3.2.3	Prepare brochure climate data in SIAR	Brochure	1		1	0	0	0	0	1	0	0	0	1	0	1	
S.A. 1.3.2.4	Social communication directed to users	Publications	8		2	0	0	2	0	3	1	3	1	8	2	6	
R.I. 4	Training program on climate change adaptation implemented has strengthened the capacities of students and faculty at UNASAM to support adaptation actions in Ancash																
A. 1.4.1.	Design training program in adaptation to climate change for faculty and students to meet the	Training modules	6	6		6	6							6		0	

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	needs of research and information services															
S.A. 1.4.1.1	Desing training plan	Documents	1	1		1	1	0	0	0	0	0	0	1	1	0
S.A. 1.4.1.2	Design module Variability	Documents	1	1		1	1	0	0	0	0	0	0	1	1	0
S.A. 1.4.1.3	Design module methods and protocols on science research	Documents	1	1		1	1	0	0	0	0	0	0	1	1	0
S.A. 1.4.1.4	Design module 'Planning CC Adaptation'	Documents	1	1		1	1	0	0	0	0	0	0	1	1	0
S.A. 1.4.1.5	Design module: Commonwealths and public administration	Documents	1	1		1	1	0	0	0	0	0	0	1	1	0
S.A. 1.4.1.6	Design module 'Instruments for facilitation in communities	Documents	1	1		1	1	0	0	0	0	0	0	1	1	0
A. 1.4.2.	Development of training courses in Climate Change Adaptation (CCA) according to the needs identified	% capacity increased	4	2	1	2	2	1	0	0	0	0	1	4	3	1
S.A. 1.4.2.1	Organize courses in CC adaptation with modules and experience of the project	Courses	4	2	1	2	2	0	0	1	1	0	0	4	3	1
S.A. 1.4.2.2	Develop course for internship candidates	Courses	4	2	1	2	2	0	0	1	0	0	1	4	3	1
S.A. 1.4.2.3	Document experience impact of training	Documents	4	2	1	2	2	0	0	0	0	1	1	4	3	1
A.1.4.3.	Elaboration of material and virtual learning space to reinforce training courses	materials in platform	1		1							0	0	1	0	1
S.A. 1.4.3.1	Design virtual platform	Module	1		1	0	0	1	1	0	0	0	0	1	1	0
S.A. 1.4.3.2	Adjust modules to e-platform	Modules in platform	7		2	0	0	2	2	3	0	0	0	7	2	5
S.A. 1.4.3.3	Implement and improve platform	Reports	7		4	1	1	1	1	1	0	1	2	7	4	3
S.A. 1.4.3.4	Build a package presenting training	Package	1		1	0	0	0	0	0	0	1	1	1	1	0
S.A. 1.4.3.5	Seek funding to continue internship	Sources of funding	3		3	0	0	0	0	0	0	3	0	3	0	3
R.I. 5.	Participants of the training internship in climate change adaptation are qualified to generate necessary, high-quality information															
A. 1.5.1.	Develop the program of training internships ("pasantias") for senior students in UNASAM	Internships managemet tools operating	3	1	2	1	1	1	0	1	0	0	1	3		1
S.A. 1.5.1.1	Develop protocols for internship	Protocol	1	1		1	1	0	0	0	0	0	0	1	1	0
S.A. 1.5.1.2	Improve protocols and capture lessons	Reports	2	1	1	1	1	1	0.5	0	0.5	0	0	2	2	0
S.A. 1.5.1.3	Select group of interns each year (each 6 - 7 months)	Students trained	22	5	8	5	5	1	0	4	0	3	8	22	13	9
S.A. 1.5.1.4	Induction of interns	Workshop	6	2	2	2	2	1	0	1	1	0	0	6	3	3
S.A. 1.5.1.5	Define themes	Themes selected	21	3	2	3	3	1.5	0	4.5	0.5	4	9.5	21	13	8
S.A. 1.5.1.6	Work plans for each intern	Work Plan	21	5	8	5	5	1	1	4	0	3	7	21	13	8
S.A. 1.5.1.7	Field work data reports	Report	131	35	48	47	47	12	22	12	9	12	5	131	83	48
S.A. 1.5.1.8	Prepare final report	Documents	21	5	8	5	5	2	1	3	1	3	6	21	13	8
S.A. 1.5.1.9	Presentations and dissemination of results	Events	21	3	3	3	3	0	0	0	0	10	10	21	13	8
A. 1.5.2.	Training internship is institutionalized at the UNASAM level and with other interested partners	Internship program recog-nized	1	0	0									1	0	1

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S.A. 1.5.2.2	Communicate results	Publications	12		6	0	0	0	0	6	4	0	2	12	6	6
S.A. 1.5.2.3	Meetings with private, public sectors: present results	Reports	4		1	0	0	0	0	3	0	0	1	4	1	3
S.A. 1.5.2.4	Seek organizations that could fund the continuity of action	Organizations	3		1	0	0	0	0	1	0	0	0	3	0	3
S.A. 1.5.2.5	UNASAM: incorporates internship	Agreements	1		0	0	0	0	0	0	0	0	0	1	0	1
S.A. 1.5.2.6	UNASAM trained in the system	People	10		0	0	0	0	0	0	0	0	0	10	0	10
S.A. 1.5.2.7	UNASAM receives system and materials	MDE	1		0	0	0	0	0	0	0	0	0	1	0	1
R.I. 6	Cooperative Research Group in Adaptation (GCI) in High-Mountain Ecosystems implements climate change adaptation projects in Ancash Region															
A. 1.6.1.	Implementation of the Cooperative Research Group in Adaptation and preparation of the regional environmental research agenda	GCI working with a plan	2	1	1	1	1	1	0			1		2		1
S.A. 1.6.1.1	Explore cooperation between Lima based academic institutions and UNALM to promote research in HBR	Reports	3	3		3	3	0	0	2	0	0	0	3	3	0
S.A. 1.6.1.2	Agreements to cooperate as network	Agreements	2	1	1	1	1	0	0	1	0	0	1	2	2	0
S.A. 1.6.1.3	Agenda for Cooperation	Work Plan	1	1	0	1	1	0	0	0	0	0	0	1	1	0
S.A. 1.6.1.4	Involve other potential support partners/organizations (MINAM-DGIIA, CONCYTEC, UNESCO)	Reports	3	1	2	1.5	1.5	0	0	1.5	0	0	0	3	1.5	1.5
S.A. 1.6.1.5	Seek fit of research agenda and climate change needs in Ancash	Agenda	1	0	1	0	0	0	0	1	0	0	0	1	0	1
A. 1.6.2.	Organize meetings between the sub-groups of the Cooperative Research Group on Adaptation to High Mountain Ecosystems to develop research projects	Research projects	7	1	2	1	1	1	0	1	0			7	1	6
S.A. 1.6.2.1	Discuss proposals with partners	Reports	12	4	2	4	4	1	1	2	1	1	0	12	6	6
S.A. 1.6.2.2	Develop and submit proposals for research with partners (e.g. McKnight, Belmont Forum, USFS, NSF, PNIA, CONCYTEC, others)	Funding sources: applications	7	3	3	3	3	1	1	2	2	1	0	7	6	1
S.A. 1.6.2.3	Implement research when approved	Research projects	4	1	2	1	1	0	0	2	0	0	0	4	1	3
R.I. 7.	UNASAM recognized as provider of information and technical assistance for climate change adaptation in Ancash															
A. 1.7.1.	Training of interns and other actors in ArcGIS on-line	persons trained ArcGis Online	20	8	15	8	8	15	0					20		12
S.A. 1.7.1.1	Acquire ArcGIS on-line	License	10	10	0	10	10	0	0	0	0	0	0	10	10	0
S.A. 1.7.1.2	SOW ArcGIS online specialist to provide training	SOW	1	1	0	1	1	0	0	0	0	0	0	1	1	0
S.A. 1.7.1.3	Train interns	Curses	3	1	1	1	1	1	1	0	0	0	0	3	2	1
A. 1.7.2.	Disseminate reports of internships/research to local governments, municipal commonwealths, SIAR and others	Research available	20	8	10	8	8			6	0	4	0	20	8	12

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S.A. 1.7.2.1	Summary of each internship results	Documents	3	0	3	0	0	0	0	0	0	3	0	3	0	3
S.A. 1.7.2.3	Communicate results to organizations in Ancash	Organizations	200	0	200	0	0	0	0	80	0	120	0	200	0	200
S.A. 1.7.2.4	Prepare E-brochures of internships	Brochure	3	1	1	1	1	0	0	0.5	0	0.5	0	3	1	2
A. 1.7.3.	Strengthen UNASAM - OEUYPS program of volunteers as well as other sources through cooperation with the climate platform and other project components	Volunteer	25	5	10	5	5			6	0	4	0	25	5	20
S.A. 1.7.3.1	Coordination with OEUYPS	Reports	2	0	1	0	0	0	0	1	1	0	0	2	1	1
S.A. 1.7.3.2	Coordination with stakeholders for volunteers	Requests of volunteers	20	4	16	4	4	0	0	3	0	13	16	20	20	0
S.A. 1.7.3.3	Implement volunteer work with UNASAM	Volunteers	20	10	10	10	10	0	0	7	0	3	0	20	10	10
R.I. 1.8	Develop a system for collecting and reporting water quality information to rural communities through students using smartphone applications															
A. 1.8.1.	Design, develop and validate a telephone app for collecting and reporting water quality information through university students	Apps validated	2	1	1	1	1					1	0	2	1	1
S.A. 1.8.1.1	Coordination with specialists to design APP	Reports	3	1	1	1	1	0	0	1	0	0	1	3		1
S.A. 1.8.1.2	Select specialist	Specialist identified	2	1	1	1	1	0	0	1	0	0	0	2	1	1
S.A. 1.8.1.3	Develop APP	App developed	2	1	1	1	1	0	0	0.25	0	0.75	0	2	1	1
S.A. 1.8.1.4	Test	Tests	4	2	2	2	2	0	0	1	1	1	0	4	3	1
S.A. 1.8.1.5	Document App	Reports	2	0	1	0	0	0	0	0	0	1	0	2	0	2
A. 1.8.2.	Institutionalize the strategy to develop Apps to support climate change adaptation with UNASAM and other partners	Agreements	2		1			1	0.5					2	0.5	1.5
S.A. 1.8.2.1	Present results of App	Presentations	2		1	1	1	0	0	0	0	0	0	2	1	1
S.A. 1.8.2.2	Seek UNASAM Faculty interested to replicate	Agreements	2		1	0.5	0.5	0.5	0	0	0	0	0	2	0.5	1.5
S.A. 1.8.2.3	Work Plan to replicate	Work Plan	1		1	0	0	1	0	0	0	0	0	1	0	1

2. Develop a program in public investment to support local adaptation plans of action

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R2	Develop a program in public investment to support local adaptation plans of action																
I.R.2.1.	Municipal Commonwealth Support Group constituted																
A. 2.1.1.	Establish a support Group with pilot Municipal Commonwealths...	Advocacy Group	1	1		1	1		0	0	0			1	1		
S.A. 2.1.1.1	Form GI with 3 MMs	Agreement	1	1	0	1	1	0	0	0	0	0	0	1	1	0	
S.A. 2.1.1.2	Provide assistance to GI: MM's development plans	Support meetings	10	2	4	3	3	1	1	2	2	0	0	10	6	4	
S.A. 2.1.1.3	Action Plan with each MM	Action Plans	3	3		3	3	0	0	0	0	0	0	3	3	0	
S.A. 2.1.1.4	Implement Action Plans	Activities implemented	180	80	80	88	88	24	51	24	19	24		180	158	22	
S.A. 2.1.1.5	Monitor Action Plans	Reports	8	4	4	5	5	1	3	1	0	1		8	8	0	
IR 2.2.	Local Adaptation Plans of Action (PAAL) developed and updated for the pilot Municipal Commonwealths																
A. 2.2.1.	Training of Municipal Commonwealths and municipal staff in...(PAAL).	PAAL (local adaptation plans)	3		3	0	0	0	0	0	0	3	0	3	0	3	
S.A. 2.2.2.1	Coordinate training	Curse designed	2		1	0	0	1	1	0	0	1	1	2	2	0	
S.A. 2.2.2.2	Capacity development meetings	Meetings	3		3	0.5	0.5	0.5	0.5	2	0	0	2	3	3	0	
S.A. 2.2.2.3	Provide technical assistance to PAAL (1 new + 2 updates)	Assistance Actions	3		3	0	0	0	0	1.5	1.5	1.5	1.5	3	3	0	
S.A. 2.2.2.4	Document PAAL with partners and specialists	Document	3		3	0	0	0	0	1.5	0	1.5	0	3	0	3	
S.A. 2.2.2.5	Revise and approve PAAL (MM Board of Directors)	PAAL approved	3		3	0	0	0	0	1.5	0	1.5	0	3	0	3	
S.A. 2.2.2.6	Support incorporation of PAAL into PDCs	Agreement	3		3	0	0	0	0	2	0	1	0	3	0	3	
IR 2.3.	Regional Climate Change Strategy (ERCC) of Ancash elaborated and proposed policies and actions incorporated in the Regional Concerted Development Plan (PDC)																
A. 2.3.1.	Ancash Government develops its Regional Climate Change Strategy (ERCC) with support of MINAM	ERCC developed	1		1	0	0	0	0	0	0	1	0	1	0	1	
S.A. 2.3.1.1	Facilitate process of support to ERCC in Council of GOR Ancash	Agreement	4	3	1	4	4	0	0	0	0	0	0	4	4	0	
S.A. 2.3.1.2	Agreements with MINAM to support ERCC. SOW consultant	Agreement	2	1	1	1	1	1	1	0	0	0	0	2	2	0	
S.A. 2.3.1.3	Revise reports of consultant	Reports	4	3	1	3	3	1	1	0	0	0	0	4	4	0	
S.A. 2.3.1.4	Support Stakeholder involvement in ERCC	Participants	150	50	100	70	70	30	58	50	0	0	22	150	150	0	
S.A. 2.3.1.5	MMs participation in ERCC	MM Reunions ERCC	3	1	2	1	1	1	2	1	0	0	0	3	3	0	
S.A. 2.3.1.6	Align PAAL - ERCC	PAAL	3	0	3	0.5	0.5	0	0	1.5	0	1	0	3	0.5	2.5	
S.A. 2.3.1.7	Coordinate with GOR Ancash insertion of ERCC in PDCR	Agreement	1	0	1	0	0	1	1	0	0	0	0	1	1	0	
S.A. 2.3.1.9	Provide assistance to include ERCC in PDCR	Support Actions	4	0	4	1	1	0	0	2	0	1	0	4	1	3	

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IR. 2.4.	Technical staff of Ancash Region, local governments and sectors have been trained and elaborated 'green' and irrigation SNIP projects incorporating risk management and climate change context.															
A. 2.4.1.	Organization of the Diploma in "green" and irrigation SNIP projects for the training of public functionaries of Ancash	Diploma level course	1	1	4	1	1	0	0	0	0	0	0	1	1	
S.A. 2.4.1.1	Design course with MEF	modules	5	1	4	1	1	2	2	2	2	0	0	5	5	0
S.A. 2.4.1.2	Coordinate with municipalities: letters support	Letters	25	25	0	25	25	0	0	0	0	0	0	25	25	0
S.A. 2.4.1.3	Support logistics of each modules	Modules	5	1	4	3	3	2	2	0	0	0	0	5	5	0
A. 2.4.2.	Implementation of the Diploma course to elaborate SNIP projects at profile level incorporating risk management in a climate change context	Public personnel trained	25	0	25	0	0	0	0	20	25	0	0	25	25	0
S.A. 2.4.2.1	Organize PIP teams	Teams	7	7	0	7	7	0	0	0	0	0	0	7	7	0
S.A. 2.4.2.2	Primary & Secondary Information for PIPs	Projects	7	7	0	7	7	0	0	0	0	0	0	7	7	0
S.A. 2.4.2.3	Incorporate risk management in PIPs	Projects	7	7	0	7	7	0	0	0	0	0	0	7	7	0
S.A. 2.4.2.4	Participants develop draft PIP profiles	Profiles	7	0	7	0	0	3	2	3	5	1	0	7	7	0
S.A. 2.4.2.5	Final edition of PIP: delivery to SNIP	Final Document PIP	6	0	6	0	0	0	0	0	0	6	6	6	6	0
A. 2.4.3.	Develop support tools for analysis of risk management and climate change context for the elaboration of "green" and irrigation SNIP projects	Support tools	5		5	0	0	1	0	2	0	0	0	5	0	5
S.A. 2.4.3.1	Local knowledge to assess wetlands (method)	Studies available	1		1	0	0	1	1	0	0	0	0	1	1	0
S.A. 2.4.3.2	Perceptions of climate change (method)	Studies available	1		1	0	0	1	1	0	0	0	0	1	1	0
S.A. 2.4.3.3	Climate Indexes / vulnerability for project design	Studies available	1		1	0	0	0	0	1	1	0	0	1	1	0
S.A. 2.4.3.4	Arc GIS online: to support PIP Development (method)	Studies available	1		1	0	0	0	0	1	0	0	0	1	0	1
S.A. 2.4.3.5	Lessons learned applying tools to PIP	document	1		1	0	0	0	0	1	0	0	0	1	0	1
IR 2.5.	Model of alliance University-Government to support continuity of 'hands-on' training in development of public investment projects with a focus on risk management and climate change context															
A. 2.5.1.	Coordinations with MEF to develop diploma on green PIPs for Ancash	Acuerdos	1		1	0	0	0	0	1	0	0	0	1	0	1
S.A. 2.5.1.1	Meetings MEF- UNASAM to asses transference	Reports	2		1	0	0	0	0	1	0	0	1	2	1	1
S.A. 2.5.1.2	Road Map to train UNASAM in cooperation with MEF	Road Map for training	1		1	0	0	0	0	1	0	0	0	1	0	1
A. 2.5.2.	Development of agreements with the Regional Government and municipalities to participate and support the continuity of Diploma training and elaboration of "green" SNIP projects	Reports	5	1	4	0	0	0	0	0	0	1	0	5	0	5
S.A. 2.5.2.1	Present results of Diploma to public sector stakeholders	Presentations	2		2	0	0	0	0	2	0	0	0	2	0	2
S.A. 2.5.2.2	Identify local governments interested in future diploma (directory)	Organizations	10		10	0	0	0	0	6	0	4	0	10	0	10
S.A. 2.5.2.3	Meetings with prospective stakeholders with interest in diploma	Reports	5		5	0	0	0	0	2	0	3	0	5	0	5

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S.A. 2.5.2.4	Pre-agreements with municipalities, GOR Ancash and agencies to participate in future diploma	Pre-agreements	5	1	4	1	1	0	0	0	0	4	0	5	1	4
S.A. 2.5.2.5	Explore possible sources of funding for diploma (include private sector)	Sources of funding	6		3	0	0	0	0	0	0	3	3	6	3	3
A. 2.5.3.	Elaborate a lessons learned document regarding the implementation of the Diploma on the "green" and irrigation SNIP projects with risk management in a climate change context	Lessons learned	1		1	0	0	0	0	1	0	0	0	1	0	1
S.A. 2.5.3.1	Prepare summary of experience: results and lessons	document	1		1	0	0	0	0	1	0	0	0	1	0	1
S.A. 2.5.3.2	Communicate document to stakeholders (S.A. 2.5.2.1., web, printed)	Media	3		3	0	0	0	0	2	0	1	0	3	0	3
S.A. 2.5.3.3	Prepare short version for funding sources (S.A. 2.5.2.5)	Document	1		1	0	0	0	0	0	0	1	0	1	0	1
IR. 2.6.	SNIP 'green' (grassland and wetland) and irrigation projects formulated in the Diploma have been budgeted and financed															
A. 2.6.1.	Specific technical assistance and follow up of the PIPs elaborated in the Diploma during the process of inscription in SNIP	Projects	6		6	0	0	3	3	3	0	1	0	6	3	3
S.A. 2.6.1.1	Meetings: follow up of profiles: authorities, Oficinas Formuladoras (UF) and Oficinas de Presupuesto (OP)	Reports	4		4	0	0	2	3	1	0	1	0	4	3	1
S.A. 2.6.1.2	Agreements with GORE and municipalities to include PIPS into PIA and PIM	PIP profiles	6		6	0	0	0	0	6	0	0	4	6	4	2
A. 2.6.2.	Public Investment projects developed in the Diploma have been assigned funding	PIP profiles funded	6		6	0	0	0	0	0	0	6	0	6	0	6
S.A. 2.6.2.1	Technical Assistance to support financing of PIPs (GOR-Ancash, FONIPREL, MIRIEGO, Obras por Impuestos)	Support Actions	6		6	1	1	0	0	3	0	2	0	6	1	5
S.A. 2.6.2.2	Technical support final PIP document into TDR level	Support Actions	5		5	0	0	0	0	3	0	2	0	5	0	5
A. 2.6.3.	Municipal authorities complete the bidding process to implement "green" and irrigation projects designed in the Diploma	Amount US Dollars leveraged	5.5		2.4	0	0	0	0	0	0	4	0	5.5	0	5.5
S.A. 2.6.3.1	Technical assistance and follow up with funding sources	Support Actions	6		6	0	0	0	0	3	0	3	4	6	4	2
S.A. 2.6.3.2	Technical assistance and follow up to support public bidding and implementation process	Support Actions	6		6	0	0	0	0	3	0	3	0	6	0	6
IR 2.7.	Women authorities in local governments have proposed and implemented policy initiatives and projects to reduce climate change impact on women in their municipalities or commonwealths															
A. 2.7.1.	Design training to strengthen the capacities of women serving in municipal councils and female leaders to promote gender inclusion and awareness of climate	Training program	1	1		1	1	0	0	0	0	0	0	1	1	

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	change impacts on women															
S.A. 2.7.1.1	Gender strategy for project	Document	1	1	0	1	1	0	0	0	0	0	0	1	1	0
S.A. 2.7.1.2	Training program on gender and climate change for regidoras	Training Program	1	1	0	1	1	0	0	0	0	0	0	1	1	0
S.A. 2.7.1.3	Gender and climate change diagnostic	Diagnostic	3	3	0	3	3	0	0	0	0	0	0	3	3	0
S.A. 2.7.1.4	Summary of experience and lessons	Document	1	0	1	0	0	1	0	0	0	0	0	1	0	1
S.A. 2.7.1.5	Seek potential funding to replicate experience (MINDES, FONCODES, JUNTOS) or further research and analysis (GRADE)	Sources of funding identified	3	0	3	0	0	1	1	1	0	1	0	3	1	2
A. 2.7.2.	Conduct training program to strengthen the capacities of women serving in municipal councils: focus on gender and public administration (command of planning and budget procedures and state administrative systems)	Women trained	50	50		50	50	0	0	0	0	0	0	50	50	
S.A. 2.7.2.1	Training women regidoras in fundamentals of public administration	Women trained	50	50	0	50	50	0	0	0	0	0	0	50	50	0
S.A. 2.7.2.3	Technical assistance to support regidoras on demand	Reports	2	2	0	2	2	0	0	0	0	0	0	2	2	0
S.A. 2.7.2.4	Measurement of self-efficacy	% self- efficacy	Base Line	Base Line	10	0	0	5	5	0	0	0	0	10	5	5
A. 2.7.3.	Conduct training of women councilors and local leaders in Gender and Climate Change: developing small projects lead by women as a learning tool on climate change adaptation actions	Women trained	62	32	30	0	0	20	20	10	0	0	10	62	30	32
S.A. 2.7.3.1	Training in gender and climate change	Women trained	90	30	30	30	30	20	20	10	0	0	10	90	60	30
S.A. 2.7.3.2	Gender diagnostic and climate change	Diagnostic	1	1	0	1	1	0	0	0	0	0	0	1	1	0
S.A. 2.7.3.3	Grassroots develop small project ideas for adaptation	Grassroots	8	5	3	5	5	0	0	5	3	0	0	8	8	0
S.A. 2.7.3.4	Implement small adaptation actions	Adaptation actions	5	0	5	0	0	0	0	3	3.5	2	1.5	5	5	0
S.A. 2.7.3.5	Summary of experience and lessons	Document	1	0	1	0	0	0	0	0	0	1	0	1	0	1
A. 2.7.4.	Technical assistance to women groups to prepare new initiatives on climate change adaptation based on their learning experience with small climate change actions	Local initiatives approved	5		5	0	0	0	0	0	0	6	0	5	0	5
S.A. 2.7.4.1	Support A regidoras and grassroots to engage in participatory budget	Reports	8		8	0	0	1	1	5	5	2	2	8	8	0
S.A. 2.7.4.2	Support grassroots groups prepare documents for participatory budget	Documents: project summary prepared	5		5	0	0	0	0	5	3	0	2	5	5	0
S.A. 2.7.4.3	Present resulting documents to participatory budget	Documents: project summary delivered	5		5	0	0	0	0	5	0	0	5	5	5	0
S.A. 2.7.4.4	Regidoras facilitate insertion of grassroots interests in municipality budgets	Documents: project summary approved	5		5	0	0	0	0	0	0	5	3	5	3	2
IR 2.8.	The network of women councilors (Red de Regidoras) disseminates its experience with national support groups or national agencies															
A. 2.8.1.	Technical assistance as required to support the	Policies	3		3	0	0	0	0	0	0	3	0	3	0	3

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	elaboration of gender-sensitive policies for climate change adaptation															
S.A. 2.8.1.1	Present results MIMP, FONCODES, JUNTOS	Presentation	4		4	0	0	0	0	4	0	0	0	4	0	4
S.A. 2.8.1.2	Meetings with Regidoras network to discuss policy initiatives concerning women, vulnerable population and climate change	Reports	2		2	0	0	0	0	2	0	0	0	2	0	2
S.A. 2.8.1.3	Identify National level groups of women to support process	Women groups	2		2	0	0	0	0	0	0	2	0	2	0	2
S.A. 2.8.1.4	Support Regidoras designing policy proposals	Policy Proposals	3		3	0	0	0	0	0	0	3	0	3	0	3
S.A. 2.8.1.5	Conference to present policy initiatives	Conference	1		0	0	0	0	0	0	0	0	0	1	0	1
A. 2.8.2.	Documentation of experience of the women working on gender and climate change adaptation through "Participatory Video" methods	Videos	3		3	0	0	0	0	2	0	0	0	3	0	3
S.A. 2.8.2.1	Plan for participatory video	Plan	1		1	0	0	1	1	0	0	0	0	1	1	0
S.A. 2.8.2.2	Trained regidoras and local groups on participatory video making	Workshops	1		1	0	0	1	1	0	0	0	0	1	1	0
S.A. 2.8.2.3	Produce videos	Videos	3		3	0	0	1	1	2	1	0	1	3	3	0
S.A. 2.8.2.4	Edit video	Video	3		3	0	0	0	0	3	0	0	0	3	0	3
S.A. 2.8.2.5	Disseminate video	videos	3		3	0	0	0	0	0	0	3	0	3	0	3

Improved capacities of communities to adapt to climate change, improve the health of ecosystems and develop infrastructures that regulate water and sustain livelihoods

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R3	Improved capacities of communities to adapt to climate change, improve the health of ecosystems and develop infrastructures that regulate water and sustain livelihoods															
IR. 3.1.	Institutionalized Mechanisms for Retribution of Ecosystems Services (MRSE) with recognized and trained advocacy group															
A. 3.1.1.	Formation of a recognized, informed, Advocacy Group ... to promote MRSE	Work plan	1	0	1	0	0	0	0	1	0	0	0	1	0	1
S.A. 3.1.1.1	Constitution of GI	Meetings	2	2	0	2	2	0	0	0	0	0	0	2	2	0
S.A. 3.1.1.2	GI organization and objectives	Report	2	1	1	2	2	0	0	0	0	0	0	2	2	0
S.A. 3.1.1.3	GI action plan short term and long term	Work Plan	2	1	1	1	1	1	1	0	0	0	0	2	2	0
S.A. 3.1.1.4	GI formed and recognized (SERNANP or MINAM)	Ordinance	1	0	1	0	0	0	0	0	0	1	1	1	1	0
A. 3.1.2.	Strengthening of the MRSE Advocacy Group	Members trained	15	5	5	5	5	0	0	0	0	5	0	15	5	10
S.A. 3.1.2.1	Initial meetings to establish group (MINAM, TNC, Pasantia Moyobamba, SUNASS)	Report	8	0	5	3	3	1	1	1	1	1	1	8	6	2
S.A. 3.1.2.2	Training workshop on MRSE	Workshop	3	0	2	0	0	0	0	1	1	1	0	3	1	2
S.A. 3.1.2.3	Participate in events MRSE to advance training	Event	4	1	2	1	1	0	0	2	2	1	1	4	4	0
S.A. 3.1.2.4	Visits to MRSE sites in Peru	Exchange	2	1	1	1	1	0	0	0	0	1	0	2	1	1
S.A. 3.1.2.5	Meetings by GI	Report	3	1	1	1	1	0	0	0	2	2	0	3	3	0
S.A. 3.1.2.6	Identify sources of funding for MRSE (directory)	Sources of funding	10	0	10	0	0	0	0	4	4	6	0	10	4	6
S.A. 3.1.2.7	Contact potential contributors provide documentation	Contacts	10	0	10	0	0	0	0	4	4	6	0	10	4	6
A. 3.1.3.	Integration of MRSE in management of Huascarán Biosphere Reserve Master Plan (MP)	Master Plan reported	1		1	0	0	0	0	1	0	0	0	1	0	1
S.A. 3.1.3.1	Advocacy Group participates in the MPI	Report	1		1	0	0	1	1	0	0	0	0	1	1	0
IR. 3.2.	The Advocacy Group (GI) has documented scenarios that have baseline studies to support community projects for water security															

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A. 3.2.1.	Definition of key actors, water suppliers and water users in the area of project implementation	MRSE system identified	1	0	1	0	0	1	1	0	0	0	0	1	1	0
S.A. 3.2.1.1	Map MRSE allies in the RBH	Document	1	1	0	1	1	0	0	0	0	0	0	1	1	0
S.A. 3.2.1.2	Identify cases for cooperation: conservationists - contributors	Report	1		1	0.5	0.5	0.5	0.5	0	0	0	0	1	1	0
A. 3.2.2.	Definition of priority areas of intervention for the Advocacy Group in the project area of implementation	Priority Areas	3	1	1	1	1	0	0	1	1	0	0	3	2	1
S.A. 3.2.2.1	Study situation of RBH ecosystems	Document	2	1	1	1	1	1	0	0	1	0	0	2	2	0
S.A. 3.2.2.2	Identify priority for MRSE	Sites	2		2	0	0	2	2	0	0	0	0	2	2	0
S.A. 3.2.2.3	Meetings to select sites	Report	4		4	0	0	2	2	2	2	0	0	4	4	0
IR 3.3	Potential stakeholders of MRSE willing to develop cooperation agreements in the RBH															
A. 3.3.1.	Sensitize and train private stakeholders that are beneficiaries of ecosystem services (SE) in the MRSE strategy	Institutions sensitized	20		10	0	0	0	0	0	0	10	0	20	0	20
S.A. 3.3.1.1	Develop opportunities SUNASS, EPS and others MRSE	Letters commitment	2		1	0	0	0	0	1	0.4	0	0.6	2	1	1
S.A. 3.3.1.2	Awareness raising events	Events	3		1	0	0	0.5	0.5	0.5	0.5	0	0	3	1	2
S.A. 3.3.1.3	Meetings with private sector promote MRSE	Meetings	3		3	0	0	1	1	1	1	1	0	3	2	1
S.A. 3.3.1.4	Training on MRSE with diverse stakeholders	People trained	30		30	0	0	0	0	30	1	0	0	30	1	29
A. 3.3.2.	Sensitize and train key communities on the MRSE strategy ...	Communities sensitized	4		4	0	0	0	0	0	0	4	0	4	0	4
S.A. 3.3.2.1	Plan and implement communication activities	Events	4		2	0	0	0	0	1	1.2	2	1.8	4	3	1
S.A. 3.3.2.2	Training on MRSE	People trained	20		10	0	0	0	0	10	10	0	0	20	10	10
S.A. 3.3.2.3	Workshops to identify MRSE actions	Projects identified	4		0	0	0	0	0	0	0	2	0	4	0	4
IR. 3.4.	MRSE management committees formed in defined priority areas of the RBH															
A. 3.4.1.	Connect upland communities... to discuss the MRSE strategy	Sub watersheds	2		1	0	0	0	0	0	0	1	0	2	0	2
S.A. 3.4.1.1	Meetings conservationists – contributors	Report	2		0	0	0	0	0	0	0	2	0	2	0	2
S.A. 3.4.1.2	Facilitate MRSE committees	Local committees	2		0	0	0	0	0	0	0	2	0	2	0	2

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		Unit of measure	Physical Target of project programmed	Physical target Achieved 2014 - 2015	Physical Target Programmed 2015 - 2016	P	E.	P	E.	P.	E.	P.	E.	P.	E.	Dif.
S.A. 3.4.1.3	Management tools for MRSE committee (reglamento)	Management tools (reglamento)	2		0	0	0	0	0	0.4	0	0.6	0	2	0	2
IR. 3.5. Diagnostic information to support development of adaptation actions (IAPS, small projects, innovative tools for decision making)																
A. 3.5.1.	Conduct Rapid Rural Appraisals ...	Documents	5	5		0	0	0	0	0	0	0	0	5		
S.A. 3.5.1.1	Gather secondary information	Reports	2	2	0	2	2	0	0	0	0	0	0	2	2	0
S.A. 3.5.1.2	Field work: identify development objectives and climate change	Reports	3	3	0	3	3	0	0	0	0	0	0	3	3	0
S.A. 3.5.1.3	Implement workshops with MMs	Workshops	3	3	0	3	3	0	0	0	0	0	0	3	3	0
S.A. 3.5.1.4	Diagnostic for each MMI	Diagnostic	3	3	0	3	3	0	0	0	0	0	0	3	3	0
A. 3.5.2.	Perform analysis of local perceptions of vulnerability to climate change...	Documents	4		4	0	0	0	0	4	4	0	0	4	4	0
S.A. 3.5.2.1	Survey of perceptions of local risk and climate change in 4 pilot sites	Survey	300	300	0	300	300	0	0	0	0	0	0	300	300	0
S.A. 3.5.2.2	Map risk perception (qualitative with focal groups)	Workshops	6		6	0	0	4	4	2	2	0	0	6	6	0
S.A. 3.5.2.3	Final Document	Document	1		1	0	0	0	0	1	1	0	0	1	1	0
A. 3.5.3.	Preparation on synthesis and orientation documents for Municipal Common-wealths ...	Documents	4		4	0	0	3	2	0	0	0	0	4	2	2
S.A. 3.5.3.1	Summary Document of territory and climate change in each MM	Document	3		3	0	0	1	1	2	1	0	0	3	2	1
S.A. 3.5.3.2	Preparto interactive maps in ESRI Arc GIS online	Map	8		5	1	1	0	1	4	2	0	0	8	4	4
S.A. 3.5.3.3	Share information with SIAR and others	Link	3		3	0	0	0	0	0	0	3	0	3	0	3
IR 3.6. Communities have established Participatory Action Research actions (IAP) at low cost and on priority issues that contribute to adaptation to climate variability and change																
A. 3.6.1.	Supporting the development of Participatory Research actions (IAP) ...	Persons trained	70	35	35	0	0	0	0	35	35	0	0	70	35	35
S.A. 3.6.1.1	Contextual analysis	Documents on context	3	2	2	2	2	0	0	0	0	1	1	3	3	0
S.A. 3.6.1.2	IAP process agreed with community	Agreements	4	3	1	3	3	0	0	0	0	1	1	4	4	0
S.A. 3.6.1.3	Train local researchers through implementation actions (3.6.2)	People trained	70	35	15	35	35	0	0	15	15	5	0	70	50	20
A. 3.6.2.	Implementation of IAPs ...	IAP implemented	14	3	11	3	3	2	2	3	3	2	3	14	11	3

Code	Description	Yr 2015 - 2016				Q VII		Q VIII		Q IX		Q X		Annual Summary		
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S.A. 3.6.2.1	Implement IAPs in 7 steps	IAP	14		11	0	0	4	4	4	4	3	3	14	11	3
S.A. 3.6.2.2	Farmer-to-Farmer exchanges	Reports	8	0	4	1	1	1	0	2	0	1	0	8	1	7
S.A. 3.6.	Share IAP results: communities and local governments	Exchange plans	2	0	1	0	0	0	0	1	0	0	0	2	0	2
S.A. 3.6.2.4	Summary document : lessons	Document	1	0	2	0	0	0	0	1	0	0	0	1	0	1
IR 3.7.	Research results have been shared and communicated among community groups in the area of influence															
A. 3.7.1.	Validation and dissemination of the results of IAP through 'Participatory Video'	Videos	2		2	0	0	0	0	2	0	0	0	2	0	2
S.A. 3.7.1.1.	Plan for 'Video Participativo'	Plans	1		1	0	0	1	1	0	0	0	0	1	1	0
S.A. 3.7.1.2	Train local groups on 'Video Participativo'	Workshops	2		2	0	0	1	0	1	0	0	0.5	2	0.5	1.5
S.A. 3.7.1.3	Prepare 'Video Participativo'	videos	2		0	0	0	0	0	2	0	0	0	2	0	2
S.A. 3.7.1.4	Edit video: prepare copies	videos	2		0	0	0	0	0	2	0	0	0	2	0	2
S.A. 3.7.1.5	Organize events with communities to share results	Reports	3		0	0	0	0	0	0	0	0	0	3	0	3
IR 3.8.	Communities and community-based groups have defined their development objectives, climatic and non-climatic threats to their territories and means of livelihood															
A. 3.8.1.	Communities and community-based organizations in pilot sites have leaders trained...	Projects	10	2	5	0	0	4	1	1	4	0	5	10	10	0
S.A. 3.8.1.1	Identify communities interested	Communities	10		10	0	0	0	0	7	7	3	3	10	10	0
A. 3.8.2.	Elaborate Local Adaptation Plans of Action (PAAL) identifying a project portfolio in pilot sites	Plans	7		4	0	0	0	0	2	1	1	6	7	7	0
S.A. 3.8.2.1	Agreements with communities to engage in local plans of adaptation (PDL)	Agreements	7	1	6	1	1	1	4	3	2	2	0	7	7	0
S.A. 3.8.2.2	Socialize results of vulnerability analysis	Event	3	0	3	0	0	0	0	2	0	0	0	3	0	3
S.A. 3.8.2.3	Apply PDL method	Workshops	7	0	7	0	0	1	1	6	6	0	0	7	7	0
IR 3.9.	Package of innovative tools to support decision-making and climate proofing in the design of community projects developed															
A. 3.9.1.	Elaboration of community handbooks ('Cuadernos Metodológicos')	Training guides	7		6	0	0	0	0	0	2	6	1	7	3	4
S.A. 3.9.1.1	IAPs and climate change	Methodology	1		1	0	0	0.25	0.25	0.75	0	0	0	1	0.25	0.75

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S.A. 3.9.1.2	Rapid Rural Appraisal and climate change	Methodology	1		1	0	0	0	0	0.4	0	0.6	0	1	0	1
S.A. 3.9.1.3	Metodology for planning (PDL)	Methodology	1		1	0	0	0	0	0.5	1	0.5	0	1	1	0
S.A. 3.9.1.4	Identification of ancestral technologies	Methodology	1		1	0	0	0	0	0.5	0.5	0.5	0.5	1	1	0
S.A. 3.9.1.5	ArcGis Online: applications to understand local context	Methodology	1		1	0	0	0	0	0	0.5	1	0	1	0.5	0.5
S.A. 3.9.1.6	Criteria to select adaptation projects	Methodology	1		1	0	0	0	0	0.5	0.8	0.5	0	1	0.8	0.2
S.A. 3.9.1.7	Set of tools packaged	Set of tools	1		0	0	0	0	0	0	0	0	0	1	0	1
IR 3.10.	Community projects focusing on reducing climate hazards and/or adaptation measures implemented in pilot sites (if small scale with project funds and if larger scale presented to national funding sources)															
A. 3.10.1.	Selection of priority adaptation projects....	Projects	5	2	3	2	2	0	0	2	2	0	1	5	5	0
S.A. 3.10.1.1	Identify projects in PDLs	Projects identified	5	2	3	2	2	0	0	3	3	0	0	5	5	0
S.A. 3.10.1.2	Identify best small projects to finance by project	Projects identified	5	2	3	2	2	0	1	1	1	2	1	5	5	0
S.A. 3.10.1.3	Identify best small projects to finance by others (e.g. MINAGRI, PSI, FONCODES, AGRORURAL)	Projects identified	5	0	5	2	2	0	1	3	2	0	0	5	5	0
3.10.2.	Implementation of community local adaptation actions with TMI project funds.	Projects	4	1	2	0	0	0	0	0	0	2	0	4	0	4
S.A. 3.10.2.1	Prepare protocol for implementation	Protocol	1	0	1	0	0	0	0	1	0	0	1	1	1	0
S.A. 3.10.2.2	Agreements with communities	Agreement	5	1	3	0	0	0	0	3	3	1	1	5	4	1
S.A. 3.10.2.3	Training on protocols	Document	8	0	8	0	0	2	2	2	2	3	1	8	5	3
S.A. 3.10.2.4	Implement small projects	Workshop	6	1	1	1	1			1	1	1	0	6	2	4
S.A. 3.10.2.5	Document results and lessons	Document	1		1	0	0	0	0	0	0	1	0	1	0	1
A. 3.10.3.	Implementation by Government of Peru agencies working in rural development of priority adaptation projects...	Projects	4	0	4	0	0	0	0	0	0	3	0	4	0	4
S.A. 3.10.3.1	Revise agency protocols (share lessons)	Protocol	4	0	4	1	0	0	0	1	0	0	0	4	0	4
S.A. 3.10.3.2	Agreements with communities	Agreements	4	0	4	1	0	0	0	3	0	0	0	4	0	4
S.A. 3.10.3.3	Implementation	Under or initiating implementation	4	0	4	1	0	0.33	0	1	0	0.67	0	4	0	4
S.A. 3.10.3.4	Document results and lessons	Document	1	0	0	0	0	0	0	0	0	1	0	1	0	1

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IR 3.11.	Financial institutions have incorporated, in its portfolio of funding, projects developed with communities under an ACC focus															
A. 3.11.1.	Identification of funding sources for communities	Agreement	3	0	3	0	0	0	0	0	0	0	0	3	0	3
S.A. 3.11.1.1	Explore with agencies (MINAGRI-PLANGRACC, PSI, AGRORURAL, NAIP, FONCODES) interest to support PDL projects	Agreement to cooperate	1	0	1	0	0	0	0	0	0	0	0	1	0	1
S.A. 3.11.1.3	Provide support to present projects to agencies	Reports	3	0	3	1	1	1	1	1	1	1	0	3	3	0
S.A. 3.11.1.4	Seek funding sources for community projects (water quality remediation, restore ancestral technology, irrigation)	Sources of funding	1		1	0	0	0	0	0	0	1	0.5	1	0.5	0.5
IR. 3.12.	Technological institutes (Institutos Tecnológicos) incorporate research methods and professional training contextualized for the implementation of small projects and IAP with an adaptation to climate change (ACC) approach															
A. 3.12.1.	Develop agreements with stakeholders to strengthen Technological Institutes ...	Support group operating	1		1	0	0	1	0	0	0	0	0	1	0	1
S.A. 3.12.1.1	Discuss scope of cooperation with Institutos and Ancash DREA	Agreement	1		1	1	1	0	0	0	0	0	0	1	1	0
A. 3.12.2.	Training of teachers and students on tools...	People trained	20		10	0	0	0	0	0	5	5	5	20	10	10
S.A. 3.12.2.2	Implement courses	People trained	20		10	0	0	0	0	5	5	5	5	20	10	10
S.A. 3.12.2.4	Document results and lessons	Document	1		1	0	0	0	0	0	0	1	0	1	0	1
A. 3.12.3.	Implementation of climate proofed, small scale projects by the Technological Institutes	IAP projects	1		1	0	0	0	0	0	0	0	0	1	0	1
S.A. 3.12.3.1.	Institutos Tecnológicos implement small projects	IAP projects	1		1	0.5	0.5	0	0	0	0	0.5	0	1	0.5	0.5
S.A. 3.12.3.2	Technical assistance during implementation	Reports	3		1	0	0	0	0	1	0	2	1	3	1	2

Annex B. Success Stories

EL AGUA ESTÁ ENFERMA, NOSOTROS VAMOS A CURARLA



“Yo tengo la fuerza como mujer, porque he visto a mis abuelas trabajando en la chacra donde también hemos ayudado, por eso queremos a nuestra tierra porque de ella vivimos”. Refiere María Quiñones.



“Soy una de las siete lideresas mujeres y aunque ellas son menores que yo, aprendo mucho de ellas para seguir adelante, por nuestros hijos y familiares, eso es mi sueño de curar nuestra agua en la comunidad”

María Quiñones Urbano (60) natural de la comunidad Macashca en Huaraz-Perú, es madre y abuela; en la actualidad se desempeña como delegada del comité central de la junta de regantes del canal de Shallap, infraestructura de casi ocho años que les permite regar sus cultivos a más de 300 agricultores, representante del sector de Campanayoc.

Al igual que María Quiñones, los habitantes de las comunidades de los sectores de Pinos-Quimchup y Macashca, se tornan preocupados porque no sólo es contar con agua para sus sembríos, sino que ésta, según estudios básicos los índices de contaminación se muestran altos y no aptos para consumo.

“En nuestra quebrada de Shallap, luego de muchos años conseguimos contar con este canal, sin embargo nuestro problema no se ha solucionado, tenemos abundante agua, pero a sola vista nos damos cuenta que el agua es color naranja porque está contaminada con metales pesados por la desglaciación, y con esa agua regamos nuestras plantas y toman nuestros animales, pero nos estamos perjudicando.”

“Por ello con el Instituto de Montaña venimos capacitándonos y organizándonos para implementar un sistema de biorremediación piloto y con ello curar nuestra agua. Al tener este sistema yo ya estaré tranquila, porque podré seguir sembrando mis plantitas, como mis ocho variedades de quinua, con la cual preparo mi chicha de jora, me sostengo económicamente y alimento a mi familia; es por ello que estamos muy agradecidos por todo el apoyo brindado”. Sostiene María Quiñones.

María Quiñones y los demás dirigentes han sido capacitados como líderes de sus comunidades en el desarrollo de capacidades organizacionales y de gestión.

En la actualidad refiere que es una de las siete mujeres de los más de cincuenta líderes con quienes viene trabajando para afrontar el cambio climático y que ha sabido ganarse el respeto y cariño de los pobladores porque siempre ha mostrado coraje, valentía y honestidad en la dirección.

UN PELDAÑO EN MI PROFESIÓN, Y PARA LA SOCIEDAD



Marisela Sánchez, recuerda que ha sido una experiencia enaltecedora, porque se han entregado proyectos a nivel del perfil a las mancomunidades municipales, para que puedan ya viabilizarlos.



Luego de 14 meses, los proyectos de inversión pública – PIPs Verdes, se presentan como una esperanza ya que han recogido la realidad de las zonas rurales de las mancomunidades municipales de la zona sierra de Ancash. Para lo cual los estudiantes se imbuyeron de la problemática de la escasez del agua y medioambientales.

Marisela Eliana Sánchez Villarreal (33), es economista de profesión y madre de un niño de cinco años, en la actualidad labora en la oficina de CONECTAMEF del Ministerio de Economía y finanzas en Ancash-Perú, y es una de las tres mujeres de los 21 profesionales, quienes culminaron satisfactoriamente el diplomado en “Elaboración de Proyectos de Inversión Pública en Adaptación al Cambio Climático y gestión de Riesgos de Desastres”, organizado por el Ministerio del Ambiente, Ministerio de Economía y finanzas, Universidad Nacional Santiago Antúnez de Mayolo y promovido por el Instituto de Montaña y USAID en Ancash durante el 2015 y 2016.

Marisela, recuerda que desde niña siempre tuvo el interés de las actividades ambientales, pero no sabía cómo anexarlo a su profesión y ya con la nueva guía de proyectos de inversión Pública, ella supo que tenía la oportunidad. Es por ello cuando se entera de la posibilidad de estudiar este diplomado, nunca lo dudó y se presentó con las ansias de poder ser seleccionada, y así fue.

“Cuando fui seleccionada y al tener la opción de elaborar los proyectos con otros profesionales de los gobiernos locales y otras instituciones, fui aprendiendo, y mucho más con la aplicabilidad en campo; éste ha sido un esfuerzo de los organizadores y de nosotros como estudiantes en dar luz a nuestros proyectos que en la realidad requieren de mucha interacción, pero más aún de la preocupación de las autoridades y formuladores de proyectos para el desarrollo en las comunidades rurales que tienen necesidades urgentes como el del agua”

“Ha sido un reto, porque como mujeres, más la carga laboral que tenemos ha sido un poco difícil, y aunque nos han brindado todas las facilidades, sólo hemos culminado tres, pero espero se pueda continuar con la impartición del diplomado en los siguientes años, para capacitar a más profesionales y ayudar a las poblaciones a mejorar su calidad de vida”.

Marisela también refiere que estos conocimientos le han servido de mucho, ya que en la actualidad ha desarrollado varias capacitaciones a los funcionarios de los gobiernos locales y todo lo aprendido lo sostiene con vehemencia tras haber sido aplicados por ella, en la misma realidad de la sierra de Ancash.